Copy 38 of 40 copies

IDA PAPER P-3141

KOREAN UNIFICATION: ALTERNATIVE ECONOMIC STRATEGIES

James P. Bell

September 1995

IDA

INSTITUTE FOR DEFENSE ANALYSES
1801 N. Beauregard Street, Alexandria, Virginia 22311-1772

IDA Log No. HQ 95-47306

DEFINITIONS

IDA publishes the following documents to report the results of its work.

Reports

Reports are the most authoritative and most carefully considered products IDA publishes. They normally embody results of major projects which (a) have a direct bearing on decisions affecting major programs, (b) address issues of significant concern to the Executive Branch, the Congress and/or the public, or (c) address issues that have significant economic implications. IDA Reports are reviewed by outside panels of experts to ensure their high quality and relevance to the problems studied, and they are released by the President of IDA.

Group Reports

Group Reports record the findings and results of IDA established working groups and panels composed of senior individuals addressing major issues which otherwise would be the subject of an IDA Report. IDA Group Reports are reviewed by the senior individuals responsible for the project and others as selected by IDA to ensure their high quality and relevance to the problems studied, and are released by the President of IDA.

Papers

Papers, also authoritative and carefully considered products of IDA, address studies that are narrower in scope than those covered in Reports. IDA Papers are reviewed to ensure that they meet the high standards expected of refereed papers in professional journals or formal Agency reports.

Documents

IDA Documents are used for the convenience of the sponsors or the analysts (a) to record substantive work done in quick reaction studies, (b) to record the proceedings of conferences and meetings, (c) to make available preliminary and tentative results of analyses, (d) to record data developed in the course of an investigation, or (e) to forward information that is essentially unanalyzed and unevaluated. The review of IDA Documents is suited to their content and intended use.

The work reported in this document was conducted under IDA's Central Research Program. Its publication does not imply endorsement by the Department of Defense or any other Government agency, nor should the contents be construed as reflecting the official position of any Government Agency.

IDA PAPER P-3141

KOREAN UNIFICATION: ALTERNATIVE ECONOMIC STRATEGIES

James P. Bell

September 1995

IDA

INSTITUTE FOR DEFENSE ANALYSES

IDA Central Research Program

PREFACE

Research for this paper was funded under the Central Research Program of the Institute for Defense Analyses. The paper analyzes alternative approaches to reunifying the Korean peninsula, focusing on the difficulties of integrating two vastly different economies. The potentially huge costs of reunification pose a painful dilemma for the Republic of Korea (ROK).

Should it pursue firm policies that could lead to the collapse of the northern regime, making near-term unification unavoidable? Or should it maintain a cooperative stance, hoping to stabilize the north and delay unification until the northern economy is ready? This paper seeks a better understanding of the economic issues raised by potential Korean unification.

The author would like to thank Kongdan Oh and Michael Green for their careful and constructive reviews of an earlier draft. Their suggestions have materially improved the paper.

CONTENTS

TABLES

SUMMARY

Reunification of North and South Korea is the fervent wish of virtually all Koreans. They were naturally inspired by the 1990 unification of East and West Germany. However, the subsequent specter of the German government spending in excess of $100 billion per year to support eastern Germany has given pause to some Korean planners. They have proposed alternatives to a sudden, German-style absorption of the northern Democratic People's Republic of Korea (DPRK) by the southern Republic of Korea (ROK).

This paper analyzes unification by absorption and the principal alternatives, mainly from an economic perspective. The basic conclusion is that the alternatives are not clearly superior to sudden absorption and may not even achieve the objective. The gradual approaches would reduce or delay unemployment relief costs, but they would also entail production subsidies and continued inefficiency. They would delay northern development and raise the eventual cost of lifting northern living standards to southern levels. They would leave open the possibility that movement toward political union could be reversed. While unification by absorption would be very expensive for the ROK government, it can limit its costs by adopting policies different than those followed in Germany.

Economic factors thus do not point unambiguously toward a policy of stabilizing the northern regime and accepting a long period of peaceful coexistence. While such a policy may prove necessary for political and military reasons, it is not mandated by economic considerations.

A. ECONOMIC COLLAPSE

German unification has been expensive because the East German economy largely collapsed. Much of it was simply not viable under competitive market conditions. Until it can be rebuilt through private capital, the German government is providing welfare transfers to support the unemployed, cover local government deficits, and rebuild public infrastructure. The North Korean economy resembles, in too many ways, the pre-1990 economy of East Germany. Even without unification it is severely depressed. Sudden integration of the two Korean economies would cause much of what remains to collapse. South Korea, like West Germany before it, would have to pay the bill.

The similarities between the North Korean and East German economies can be traced to their communist systems and associated outlooks. Both economies were dominated by central planning, which failed to create the incentives necessary to achieve high productivity. For strategic reasons, both developed overly industrialized economies and pursued a costly quest for self-sufficiency in food. Both isolated themselves from the capitalist world, which left their capital stocks obsolete and their products uncompetitive. Both neglected consumers but protected workers, leading to massive overstaffing to preclude unemployment. In the end, inefficiency left them chronically short of the investment resources needed for continued economic growth.

North Korea would collapse after integration for the same reasons that East Germany did. The transformation from central planning to a market economy would disrupt production and the supply of industrial materials. Production units, suddenly treated as companies and held accountable for their costs, would discover they were insolvent, particularly after price controls and subsidies were eliminated. New competition from high-quality southern products would destroy even formerly solvent operations.

In some ways, of course, North Korea would face different circumstances than East Germany. For example, German integration was accompanied by the disruption of established trading patterns with the Soviet bloc, which further reduced the demand for East German goods. In contrast, North Korea has already suffered the elimination of Soviet-bloc trade preferences, although it has retained preferential trade arrangements with China. Also, production for military use dominates North Korean industry much more than was true for East Germany, so that demobilization would represent a greater demand shock for North Korea.

B. DEFINITION OF SCENARIOS

Unification by absorption and the principal alternatives that have been proposed are analyzed in this paper as planning scenarios, namely:[1]

1. *Simultaneous political union and economic integration.* This is the German-style case where virtually all economic barriers between the two economies are removed immediately.

---

1 This three-way classification captures the key distinction among the unification approaches discussed by analysts and planners. As noted in following chapters, gradual methods have been proposed by planners at the ROK Finance Ministry, the Korean Development Institute, and the Research Institute for National Unification, among others.

2. *Gradual economic integration after political union.* Here, the ROK takes political control but retains north-south border controls and manages the north as a separate economic region.

3. *Gradual economic integration before political union.* The ROK offers economic cooperation and aid to induce the north, still ruled by the DPRK, to institute economic reforms leading gradually to economic integration and then political union.

The focus of this paper is on how the respective scenarios might unfold rather than on how the ROK government might promote the likelihood of a preferred scenario. In fact, the ROK has only a limited ability to influence the historical events that will determine the outcome. The ROK, for example, might block economic cooperation in hopes of precipitating a northern collapse leading to scenario 1, but the DPRK would probably survive anyway. If political union is achieved, the ROK might choose to implement scenario 2 but be forced by an outraged northern population to provide scenario 1. Alternatively, the ROK might pursue scenario 3 but discover that the DPRK was not interested in unification on the south's terms. The north might accept economic cooperation and aid without disavowing either socialism or sovereignty. In the end, the south might face a strengthened northern adversary still bent on unification based on its own system.

C. COMPARISON OF SCENARIOS

Under all of the scenarios, the ROK's economic objectives are to transform the DPRK to a privatized, self-supporting market economy and to raise the northern standard of living to match the much higher level of the south. A competitive market system could probably be established within a decade, but parity in living standards would require at least several decades. Northern living standards are thus likely to be lower than southern standards when economic union occurs.

The impact and cost of economic transformation would depend on which scenario was implemented. Under scenario 1, the north would be exposed to the full brunt of southern competition. Much of the economy would fail and most of what survived would be sold to southern capitalists. They would dominate the rebuilding process. This could be the quickest approach but would initially require very large welfare transfers. However, the ROK government could improve upon the German case by pursuing a low-wage policy in the north. This would enable northern producers to compete by offering products with low quality for low prices. In this way, more of the northern economy could survive and welfare costs would be lower.

Under scenario 2, the ROK government would establish tariffs and other trade barriers to protect northern producers from southern imports. This respite from southern competition would initially enable more northern enterprises to survive. Over time, the government would restructure and transform the northern economy and gradually reduce trade barriers as northern competitiveness improved. This approach would reduce short-term welfare costs but would also prolong the waste and inefficiency of the northern system and probably delay the achievement of parity in living standards. Scenario 2 would also give the government more policy tools with which to keep northern wage and price levels competitive. For example, border controls could be used to limit economic emigration, thereby reducing pressures to raise northern wages to southern levels. Further, the government could maintain a separate currency for the north and adjust its value as necessary to keep northern products competitive.

Scenario 3 would ideally resemble scenario 2, except that the economic transformation would be managed by the DPRK rather than the ROK government. The DPRK would implement market reforms and gradually open the border to trade and investment as it became more competitive. In the end, a Korean free trade area would lead to economic union, paving the way to political union. However, with the DPRK government in charge, economic transformation is more likely to follow the Chinese model of market socialism than the southern model. Moreover, the DPRK's continuing responsibility to defend its sovereignty would affect the way it structured its economy and its tolerance for interdependence. For these reasons, raising northern living standards to parity is likely to take longer and be more costly under scenario 3 than scenario 2. However, welfare payments would be lower than under scenario 1 and the ROK would at most supplement the DPRK in financing those payments.

This paper has not explicitly estimated the costs of unification under the various scenarios. Qualitatively, it is apparent that short-term welfare costs would be highest under scenario 1, while long-term development costs would be highest under scenario 3. From the perspective of ensuring political unification and precluding future military threats from the DPRK, a peaceful scenario 1 or 2 would certainly be preferable. However, without quantitative cost estimates, it is not clear whether the short-run costs of scenarios 1 or 2 would be affordable or which of the three scenarios could be achieved at the lowest overall cost.

I. INTRODUCTION

A. DILEMMA

Reunification of North and South Korea is a deeply held goal for Koreans. The official reunification approach of the Republic of Korea (ROK) in Seoul, enunciated in 1989, is to move cautiously through stages of reconciliation, cooperation and commonwealth, and finally unification. The quick reunification of Germany in 1990, however, led many to wonder whether a sudden reunification of Korea might also be imminent. Hope quickly turned to fear as the high cost of German reunification became apparent. Sudden unification in Korea might impose hundreds of billions of dollars in costs on the ROK, throwing its own growth and stability into question while it was swamped by mass migration from North Korea. An escalating series of cost estimates has led many analysts to propose methods of reducing or at least delaying the costs, basically, by delaying unification until the North's economy is ready.

The gradual approach, while appealing, also carries a number of risks. For example:

- The Democratic People's Republic of Korea (DPRK) in Pyongyang has built a consistent record of hostility and duplicity toward the ROK. A gradual policy of economic cooperation might stabilize the DPRK regime and would inevitably strengthen its military potential, putting the ROK at risk.
- Successful development in the North would help legitimize its current regime—or a kinder, gentler successor—perhaps delaying reunification indefinitely.
- Delay would preserve the opportunity for neighboring countries to influence the North and the terms of reunification.

In short, putting reunification off until the future could well mean putting it off indefinitely or allowing it to take place on terms that are unfavorable for the South. If history does present the ROK with an opportunity for quick peaceful reunification, must it demur because of the high costs? Or should it instead follow the example of Germany's Chancellor Helmut Kohl and unite the nation while it can?[1]

Because the gradual approach is not entirely satisfactory, and because circumstances might give the ROK no choice but to unify suddenly, it is worth examining the economic aspects of both sudden and gradual unification schemes more carefully. Is unification as costly as advertised? Does the gradual approach reduce the cost? Is there an option between sudden and gradual?

B. SCENARIOS

This paper analyzes three planning scenarios representing sudden unification by absorption and the two principal alternatives that have been proposed for gradual unification. The focus here is on how these scenarios might unfold rather than on how the ROK government might promote the likelihood of a preferred scenario. In fact, the ROK has only a limited ability to influence the historical events that will determine the outcome. The three scenarios are:

1. Simultaneous political union and economic integration
2. Gradual economic integration after political union
3. Gradual economic integration before political union

Under scenario 1, a sudden collapse of the DPRK regime leaves the ROK with responsibility for North Korea. The ROK seizes the moment and quickly establishes both political and economic union. The ROK government holds complete political and military authority throughout the peninsula. Korean citizens from the northern and southern regions are equal under the law. Barriers to commerce between the regions are removed. The government implements a massive emergency program to sustain life in the northern

---

1 On November 28, 1989, Chancellor Kohl announced a 10-point plan to establish a confederal structure as a step toward eventual federation of the two Germanies. However, by March 1990, mass migration, popular demonstrations, and legislative elections in East Germany had created an opportunity for quick integration of the east into West Germany. The accession treaty took effect on October 3, 1990. See the brief history in Kihl 1994, 287–288.

region, establish a market system there integrated with the southern economy, and promote economic development. The costs are enormous because much of the northern economy collapses after—if not before—unification. The ROK is willing to bear these costs because it's the right thing to do and in order to maintain stability and preclude mass migration to the South.

Scenario 2 posits the same situation as scenario 1 but allows the ROK to respond differently. The ROK establishes full political and military authority throughout Korea, but keeps the north and south separate as special administrative regions (SARs). The ROK maintains both immigration and customs controls between the regions. Migration from north to south and economic competition from south to north are controlled as necessary to protect the respective regions. The ROK embarks on a massive emergency program as described for scenario 1 but the costs are lower, particularly because more of the northern economy continues to function. Over a period of time, border controls are progressively relaxed as a competitive northern economy emerges.

With scenario 3, the DPRK regime chooses to cooperate with the ROK in a gradual program of economic cooperation leading toward eventual political unification. The current DPRK regime may survive and permit cooperation only grudgingly, or it may give way to a reformist regime that implements a socialist market system. Since the two economies are virtually integrated prior to political union, a massive emergency program is not needed. However, the ROK provides substantial support for development in the northern region both before and after political union.

The survival and evolution of the DPRK regime will be determined mainly by events in North Korea. However, the ROK will decide whether to offer the option of economic cooperation to the DPRK, and may thereby marginally influence whether the DPRK collapses. If the DPRK does collapse, then the ROK should be able to choose between scenarios 1 and 2. This paper seeks an understanding of the economic implications of the choices the ROK may be called upon to make.

C. ECONOMIC OBJECTIVES

In examining economic strategies for Korean unification, we should distinguish between two principal goals:

- Short-term integration
- Long-term development

Strategies should seek to achieve these goals efficiently and at a cost the Korean peninsula can afford.

At the time of political union, the ROK will manage and fund the *short-term integration* of the northern region with the southern economy. When this goal has been reached, the northern economy will be characterized by:

- A functioning market system
- A stable, largely self-supported standard of living
- Openness to trade and investment from the southern region

Initial conditions at the time of political union may necessitate an emergency relief program to sustain life and subsidize production as well as administer the transition to a market system. Substantial investment will be needed to bring the northern economy to a competitive, self-supporting condition.

The long-term development goal is to achieve a high and rising standard of living for Korea with rough parity between the northern and southern regions. At the time of political union and even after the period of short-term integration, the northern standard of living will be substantially below the southern level—unless there has been a very long and successful scenario 3. For human as well as financial reasons, it may be decades before the living standards have been equalized. The government must nevertheless make a concerted effort to develop the northern region.

Distinguishing between the integration and development goals is key to devising a realistic and affordable unification program. Large differences in per capita income may persist long after the economies have been integrated.

D. OFFICIAL UNIFICATION PROPOSALS

The north's unification proposals include ideas of federation and confederation. Kim Il Sung first proposed confederation on August 14, 1960, as one of several alternatives. Under that proposal, a confederation would include a supreme national committee to coordinate development, but would leave the two separate governments intact.[2] By 1980, the north espoused a Democratic Confederal Republic of Koryo, providing for unity as one nation in one state, with two systems and two regional

---

2 See Kihl 1994, 277.

governments.[3] By 1991, as it grew worried about being absorbed by the south, the north proposed that reunification begin as a confederation of regional autonomous governments that would gradually cede power to a central government. All of these proposals have included demands that the south disavow military ties with the US and have envisioned substantial demilitarization within Korea.

The south proposes a three-stage unification process.[4] The first stage would be a period of reconciliation and cooperation to build mutual trust and a sense of community. The second stage would establish a Korean Commonwealth with a loose governing structure. The Korean Commonwealth would develop institutions to promote integration and, eventually, promulgate a constitution. General elections would then establish a unified central government and national legislature for the third stage. The Korean Commonwealth would be much weaker than the Democratic Confederal Republic of Koryo envisioned by the north. However, the third stage government would be much stronger, essentially eliminating the autonomy of regional governments and the existence of separate systems.

The two Koreas have negotiated a few cooperation agreements over the years, but the results have been disappointing. Secret negotiations led to a July 4, 1972, South-North Joint Communique that affirmed unification principles and provided for steps to ease tensions and promote exchanges under Red Cross auspices.[5] The north broke off the dialogue, for the most part, by August 28, 1973, and little of substance was accomplished. Another dialogue in 1984–85 led to a few visits for separated families and to some cultural exchanges. Then, two promising agreements were reached in December 1991, namely the Agreement on Reconciliation and the Joint Declaration on Denuclearization. They were officially put into effect on February 19, 1992.

The Agreement on Reconciliation, often referred to as the basic agreement, was achieved on December 13, 1991. The basic agreement is significant because it is a direct bilateral agreement on concrete steps to foster peaceful coexistence.[6] It includes chapters dealing with reconciliation, nonaggression, and exchanges and cooperation. The chapter

---

3 See Kihl 1994, 139–140.

4 The plan was articulated by President Roh Tae Woo September 11, 1989. President Kim Young Sam gave his support to the formula in May 1993. See *Korea Observer*, Winter 1993, 484–485, Gong *et al.* 1994, 33–34, and Jordan 1993, 24–26.

5 See Jordan 1993, 105; and Kihl 1994, 134.

6 See Kihl 1994, 136–137.

on exchanges and cooperation provides for cultural and humanitarian exchanges and for linking the Koreas via railroad, highway, ship, plane, mail, and telecommunications. It also proposes joint resource development, trade (treated as domestic commerce), and joint ventures in order to promote development of the combined national economy. The Koreas agreed in May 1992 to establish a liaison office in Panmunjon and, on September 17, 1992, signed protocols to establish joint commissions to implement the basic agreement. By the end of 1992, however, the north backed away, refusing to convene the joint commissions or continue scheduled high-level talks.[7]

The Joint Declaration on Denuclearization was reached on December 31, 1991. In it, the two Koreas forswore nuclear weapons as well as nuclear reprocessing and uranium enrichment facilities.[8] In May 1992, they set up a joint nuclear control commission to carry out verification inspections. However the two sides disagreed on the scope and timing of inspections, with the north failing to offer sufficient transparency. Commission talks ended without success on December 17, 1992.[9]

7 See Kihl 1994, 221–222.

8 See Kihl 1994, 138–139.

9 In the meantime, the drama of inspections by the International Atomic Energy Agency (IAEA) was unfolding. North Korea signed the IAEA safeguards agreement in January 1992 and permitted IAEA inspections between May 1992 and February 1993, before announcing (on March 12, 1993) its intention to withdraw from the Nuclear Proliferation Treaty. See Gong et al. 1994, 79-80.

II. DESCRIPTION OF NORTH KOREAN ECONOMY

Unification costs will be determined, in large part, by the condition of the North Korean economy. This chapter documents that the north is not ready for market competition. It will have to be transformed and rebuilt, largely from scratch. It is already in deep trouble and would substantially collapse if exposed to outside competition prematurely. Dealing with the north's decrepit economy is the fundamental issue considered in the discussion of scenarios in Chapters IV, V, and VI below.

The reader is cautioned, however, that much of the discussion in this chapter is based on data that cannot be verified. The North Korean government publishes relatively few economic statistics and is well aware of the propaganda impact of what it does release. Outside sources, South Korea's National Unification Board for instance, must construct their data series by interpreting and interpolating whatever data is available. Note also that in the following discussion, "north" refers to the territory of North Korea, currently governed by the Democratic People's Republic of Korea (DPRK). Further, "south" refers to the territory of South Korea, currently governed by the Republic of Korea (ROK).

A. MACROECONOMIC TRENDS

North Korea made considerable progress in recovering from the destruction of the Korean War. Its per capita gross national product (GNP) now places it within what the World Bank calls lower-middle-income countries, above such low-income countries as India, China, and Indonesia. In recent years, however, the north's progress has been reversed while South Korea's economy has moved dramatically forward. As shown on Table II-1, northern GNP peaked in 1989 and has declined since then at a 3.9 percent annual rate.[1] South Korea's GNP is now 16 times larger than the north's, while its population is only twice as great, leaving it with per capita income 8 times larger.

---

1 North Korea's economy reportedly shrank another 1.7 percent in 1994. See *Far Eastern Economic Review*, June 29, 1995, 71.

Table II-1. Comparison of North and South Korea (1993)

	North Korea	South Korea
GNP ($b)	20.5	328.7
Annual growth since 1989 (%)	-3.9	11.7
Population (m)	22.6	44.1
Annual growth since 1989 (%)	1.4	1.0
GNP per capita ($)	904	7,466
Annual growth since 1989 (%)	-2.2	10.6

Source: RINU 1993,61 and Forbes, September 12, 1994,179.

North Korea's economic problems can be attributed to a variety of factors, including squandering its limited resources on grandiose projects, maintaining one of the most militarized societies in the world, placing a disproportionate emphasis on developing heavy industry, exhausting the extensive growth potential of its centrally planned socialist system, and being obsessed with economic self-sufficiency.[2]

It is ironic, in light of the DPRK's autarkic goals, that the most obvious cause of its recent problems is the loss of the foreign trade privileges it had enjoyed with its socialist partners. Beginning in 1989, the disintegration of the Soviet block deprived North Korea of trading partners willing to barter on favorable terms for the limited products it could offer. The Soviet Union demanded that trade be settled in hard currency by 1992, and China later made the same demand for 1993. North Korea, however, has relatively few competitive products that it can sell for hard currency.

The loss of export markets and Soviet subsidies has greatly reduced North Korea's imports, particularly for oil and industrial materials. As a result, energy shortages and lack of spare parts have idled much of the north's industrial capacity. Table II-2, for example, shows that capacity utilization for industries ranging from coal to textiles has dropped drastically since the mid 1980s and is now less than 50 percent.

2 The DPRK's guiding juche philosophy emphasizes self-reliance. Juche was expounded by President Kim Il Sung on his 50th birthday in 1962. As Soviet and Chinese aid tapered off in the mid 1960s, the emphasis on self-reliance was strengthened. See Hwang 1993,193 and *Korea and World Affairs*, Spring 1991, 26.

Table II-2. Comparison of Capacity Utilization

Product	Units	Average Output		Capacity Utilization (%)	
		1985-88	1991-92	1985-88	1991-92
Iron ore	Mt	8.3	7.0	97.1	81.9
Coal	Mt	70.0	30.1	100.0	43.0
Chemical fertilizers	Mt	3.5	1.4	99.7	40.3
Cement	Mt	10.8	5.0	89.6	41.3
Steel	Mt	5.5	2.5	92.4	41.5
Textiles	Gm	0.7	0.2	97.1	27.9

Source: 1985-88 based on *Korea and World Affairs*, Spring 1992, 31 and Hwang 1993,124.
1991-92 based on RINU 1993, 51.

B. HEAVY INDUSTRY

North Korea has pursued a strategy of economic autonomy. Its ratio of total trade to GNP is only 11.3 percent. Further, imports account for only 7.5 percent of total spending (i.e., GNP minus exports). As shown on Table II-3, these shares are less than one-third of the average value for lower middle income countries (with per capita incomes comparable to North Korea's.)

Table II-3. Trade Dependence (1991)

	Share of Trade in GNP (%)	Share of Imports in Domestic Spending (%)
North Korea	11.3	7.5
South Korea	55.8	40.1
Lower Middle Income	37.2	24.0
World	31.9	19.4

Source: World Bank 1993 except for North Korea.

North Korea's desire for autonomy, coupled with the high priority it places on military power, have caused it to invest disproportionately in developing heavy industries (e.g., chemicals, metals, machinery.) As a socialist economy, North Korea can be expected to emphasize industrialization and neglect services.[3] However, Table II-4 suggests that North Korea's degree of industrial emphasis is unusual among both socialist and lower middle income countries.[4]

3 Socialist economies consider many services to be unproductive. Further, they make little use of such capitalist services as insurance, stock trading, and commercial banking.

4 The industry share shown in Table II-4 is below the peak of 66 percent reached in 1975-80. See Hwang 1993, 242.

Table II-4. Comparison of Industrial Structures (1989)

	Share of Gross Domestic Product (%)		
	Agriculture	Industry	Services
North Korea	25	58	17
South Korea	10	44	46
USSR	20	44	36
China	32	48	20
Lower Middle	14	35	51

Source: *Korea and World Affairs*, Spring 1992, 34.

Within the industrial category, North Korea has emphasized heavy industry and neglected light industry and especially consumer goods. By one estimate, the output of heavy industry is five times greater than that of light industry.[5] Another observer estimates that mining and manufacturing account for about 60 percent of total investment, with 72 percent of that share going to heavy rather than light industry.[6]

To some extent, North Korea's emphasis on heavy industry can be explained by its relatively good endowment of mineral deposits. Table II-5, for example, shows that North Korea has relatively large deposits of a number of industrial minerals.

Table II-5. Comparison of Mineral Resources (1989)

Mineral Deposit	Units	North Korea	South Korea	North/South
Magnesite	Mt	6500.0	0.0	na
Zinc	Mt	12.0	0.0	na
Bituminous coal	Mt	3000.0	5.0	600.0
Limestone	Gt	100.0	1.5	67.1
Lead	Mt	12.0	0.6	18.8
Iron	Mt	3000.0	200.0	15.0
Anthracite coal	Gt	11.7	1.5	8.1
Nickel	kt	1200.0	217.0	5.5
Gold	kt	1.0	0.5	2.0
Copper	kt	75.0	80.0	0.9
Uranium	Mt	26.0	56.0	0.5

Source: Hwang, 248

The influence of these resources on the north's industrial structure can be traced in Table II-6, which compares industrial capacities in the two Koreas. Products on Table II-6 are listed in ascending order according to south-north capacity ratios. Thus, products near

5 See *Korea and World Affairs*, Spring 1992, 28.

6 In South Korea, heavy industry accounted for 60 percent of investment in mining and manufacturing in 1990. See Hwang 1993, 183.

the top of the table are those that the north has developed more intensively, relative to the south. Most if not all of the first 11 products (down through "steel") have an apparent connection to the north's mineral deposits or other natural resources. For example, electricity generation makes use of the north's coal deposits and especially its hydroelectric potential.[7] The major exception is fertilizer, whose relatively large production capacity can be attributed to the north's self-sufficiency objective. Note also that, for products with south-north capacity ratios greater than the ratio of populations (i.e., 1.9), per capita capacity is lower in the north than the south. By this measure, the north has underdeveloped such heavy industries as steel, trucks and buses, tractors, shipbuilding, and passenger cars. The north has similarly underdeveloped consumer and export-oriented products such as fibers, textiles, and TV sets.

Table II-6. Comparison of Industrial Capacity (1991)

Product	Units	North Korea	South Korea	South/North
Iron ore	Mt	8.5	0.2	0.0
Coal	Mt	70.0	24.3	0.3
Zinc	kt	295.0	285.0	1.0
Chemical	Mt	3.5	4.3	1.2
Lead	kt	87.5	130.0	1.5
Population				**1.9**
Copper	kt	90.4	234.4	2.6
Pig iron	Mt	5.4	17.6	3.3
Electric capacity	MkW	7.1	24.1	3.4
Cement	Mt	12.0	47.0	3.9
Aluminum	kt	20.0	85.1	4.3
Steel	Mt	6.0	25.9	4.3
Trucks & buses	k	30.0	200.0	6.7
Machine tools	k	35.0	277.0	7.9
Textiles	Gm	0.7	7.7	11.3
Fibers	kt	177.0	2100.0	11.9
Synthetic resins	Mt	0.2	2.2	14.9
Oil refining	k brrls/day	69.0	1090.0	15.8
Tractors	k	32.0	641.0	20.0
Shipbuilding	k grt	214.0	4567.0	21.3
TV sets	M	0.2	15.2	63.3
Passenger cars	k	33.0	2300.0	69.7

Source: Based primarily on RINU 1993, 49, 51, 62–3.

Despite the north's emphasis on developing heavy industry, much of it is obsolete. More than 70 of its aging industrial plants were built with Soviet assistance, reportedly accounting for 60 percent of electricity, 40 percent of steel, 50 percent of oil refining, and

7 Some 60 percent of the north's generating capacity is hydroelectric, for example, utilizing dams along the Yalu River. See RINU 1993, 52.

13 percent of fertilizer capacity.[8] The machine tool industry relies on Eastern European technology from the 1960s and 1970s. One diplomat visited 50 factories and concluded that most were 30 years behind world-class technology levels.[9] There is evidently little or no production of computers or semiconductors.[10] At most, the north may have 10 or 15 modern factories, built mainly with foreign assistance, including a German cement factory, a Swedish factory making pre-fabricated concrete slabs, an aluminum factory, and several textile mills.

Because the north has deemphasized foreign trade and its own market is quite small, much of its capital-intensive heavy industry is too small to realize potential economies of scale. For example, the north's steel capacity is between 6 and 8 million metric tons per year. In the south, the government-owned Pohang Iron and Steel Company alone has a capacity of 22 million tons (in multiple plants). Further, southern conglomerate Hyundai has proposed entering the steel industry by building a mill with a capacity of 10 million tons.[11] In contrast, the Soviets proposed in 1987 to modernize the north's antiquated Kim Chaek steelworks and upgrade its capacity, but only to 2.5 million tons.[12]

The high cost of autarky can also be illustrated by the north's efforts to boost textile production, despite a shortage of cotton and petroleum-based synthetic fibers. Rather than use scarce foreign exchange to import such materials, the DPRK planned to manufacture vinalon, a synthetic fiber utilizing its plentiful limestone deposits. With Soviet help, the DPRK planned to build five factories. However, the opening of the first 100,000-ton plant at Sunchon has been hampered by explosions related to the immaturity of the process.[13] The viability of vinalon, which has been characterized as an obsession for Kim Il Sung, is evidently still in doubt.[14]

---

8 See *Asian Survey*, September 1993, 866.

9 See *Far Eastern Economic Review*, May 30, 1991, 38.

10 The north nevertheless obtains sophisticated chips through its traders in Japan, and has offered to supply such chips to Russia. See *Wall Street Journal*, February 12, 1993, A10.

11 Hyundai proposed investing $8.76 billion. See *Wall Street Journal*, October 7, 1994, A5A. The south's Ministry of Trade and Industry reportedly frowned on Hyundai's proposal to create competition for Pohang. Note also that Japan produced 100 million tons of steel in its 1995 fiscal year. See Foreign Broadcast Information Service, FBIS-EAS-95-124, June 28, 1995, 12.

12 See Hwang 1993, 203.

13 A significant share of any vinalon output will be shipped to Russia to repay debts. See *Asian Survey*, September 1993, 869.

14 See Henriksen and Lho 1994, 45.

C. MILITARY PRODUCTION

Military requirements dominate North Korea's economy. The north spent an estimated \$5.6 billion on its military in 1993, amounting to 27.4 percent of its GNP.[15] Military requirements have driven the north's persistent, distorting emphasis on developing heavy industries. These industries exist primarily to support military production, which may absorb more than half of their output.[16]

The military has first call on economic resources, a prerogative which has enabled its estimated GNP share to rise as the north's GNP has fallen in recent years.[17] The DPRK's Second Committee for the Economy assures that military needs receive top priority. However, recent problems with the north's economy have been so severe that even the military has been affected. For example, while the DPRK maintains a war reserve of 1 million tons of oil, recent fuel shortages have forced cutbacks in ground exercises and pilot training.[18] There are also reports that North Korean sailors have been sent on fishing missions to feed themselves and that lower military ranks are receiving only one meal per day.[19] With overall industry operating at 50 percent of capacity, it seems likely that the production of military equipment has also been affected.

North Korea produces a broad spectrum of military products, using mostly simple Chinese and Soviet designs. It is said to have 134 arms factories, many of them underground.[20] Perhaps 33 of these make ammunition and another 15 produce artillery and small arms. North Korean artillery pieces and rocket launchers are considered world-class. The north manufactures Soviet-series tanks, including the T54, T62, and possibly the T72. North Korea also manufactures armored cars, miniature submarines,

---

15 The south spent \$11.9 billion, but that amounted to only 3.6 percent of its GNP. These are estimates made by the Korea Development Institute as reported in *Forbes*, September 12, 1994, 179.

16 Heavy industry has been estimated to account for five-sixths of industrial output or about half of GNP. See *Korea and World Affairs*, Spring 1992, 28. That would make heavy industry output \$10 billion in 1993. The estimated \$5.6 billion in military spending for 1993 could account for roughly half of that, allowing for military purchases of food and other necessities. One observer estimates that as much as two-thirds of heavy industry output is for military purposes. See Hwang 1993, 183. Another observer estimates that defense industries account for 30 percent of the north's gross social product (GSP), which is more than the GSP for civilian industrial products. See *Asian Survey*, September 1993, 865.

17 In 1991, northern military spending was estimated as 22 to 24 percent of a GNP that was 10 percent higher. See *Asian Survey*, September 1993, 877.

18 See *Far Eastern Economic Review*, May 23, 1991, 16; and *New York Times*, October 15, 1992, 10.

19 See *Jane's Defense Weekly*, June 25, 1994, 15.

20 See *Far Eastern Economic Review*, May 23, 1991, 16–17.

small missile boats, Styx antiship missiles, and communications equipment. In 1991, the DPRK was completing a factory at Pangyon, with Soviet and Chinese assistance, to manufacture MiG-21 fighters and reportedly had been licensed to produce MiG-29s.[21] The north also produces aircraft spare parts. Reportedly, the north has 8 plants for the production of chemical and biological weapons.[22] It has apparently tried to develop nuclear weapons as well.

The DPRK has also been active in the production and export of surface-to-surface SCUD missiles. The north is said to have 300 missiles with a range greater than 167 kilometers and has tested the Rodong 1 missile, which has a target range of 1,000 kilometers.[23] It is also developing the Rodong 2 missile with a target range of up to 2,000 kilometers.[24] In the 1970s, the DPRK acquired SCUD missiles from Egypt. In 1987, with some research and development funding from Iran, North Korea began to produce its own SCUDs. The north reportedly has sold SCUD-B and SCUD-C missiles worth $2 billion to Iran, Syria, Iraq, Libya, and Egypt.[25] Both North Korea and China are selling technology to support a joint Syria-Iran program to produce SCUD missiles. In addition to missile exports, the DPRK sold Iran $2 billion in artillery, tanks, and tactical missiles.

In addition to producing its own arms, North Korea has imported arms from the USSR and China, usually at low friendship prices. The DPRK imported some $3 billion in arms from the Soviet Union during the 1980s, but Russia has now halted subsidized arms sales.[26] There were reports in 1991 that China would step up military cooperation with the

---

21 However, Soviet technicians were required to maintain the north's MiG-23s, MiG-29s, and Su-25s. See *Far Eastern Economic Review*, May 23, 1991, 17.

22 See *Far Eastern Economic Review*, May 23, 1991, 16.

23 See Kihl 1994, 329.

24 See Gong *et al.* 1994, 42. The north reportedly tried to hire 60 Russian scientists to help develop its missiles, but President Yeltsin stopped them at the airport. See *Wall Street Journal*, February 12, 1993, 2.

25 See *Korea Observer*, Winter 1993, 492.

26 See *Far Eastern Economic Review*, May 23, 1991, 17; and *Wall Street Journal*, February 12, 1993, 1. Arms imports dropped from a peak of $1 billion in 1988 to only $90 million in 1991. During the period 1987-91, 97 percent of the north's arms imports originated in the Soviet Union. See U.S. Arms Control and Disarmament Agency 1994, 111, 132.

DPRK, but it was also reported that China would not make up (in quantity or sophistication) for what the DPRK could no longer obtain from Russia.[27] The north relies on imports for intermediate materials, e.g., ball bearings, for military production.[28]

D. LIGHT INDUSTRY

The emphasis on heavy industry has greatly limited the resources available for the production of consumer goods. To offset the stinginess of the central plan, the DPRK has encouraged local production. While 85 to 90 percent of consumer goods are formally distributed through state channels in accordance with the central plan, perhaps half of that amount is, in reality, planned and produced at the county level. The remaining 10 to 15 percent is produced locally outside the central plan and distributed through local direct sales stores under the August 3 program.[29]

The August 3 program, initiated in 1984, encourages local production of consumer goods from scrap, industrial by-products, and underutilized land and labor. Distribution of August 3 output through local direct sales stores evidently improves factory-level incentives.[30]

Thus, less than half of the north's consumer goods are supplied through factories planned and supervised at the provincial or central level. The typical county operates 20 or 30 factories that make such items as furniture, utensils, containers, ornaments, apparel, building materials, paper, and processed foods. These local factories provide income to support local government budgets, with the surplus being transferred to the center. Local factories rely primarily on local resources.

---

27 See Kihl 1994, 36, and *Far Eastern Economic Review*, May 23, 1991, 16.

28 While North Korea has five domestic plants, it evidently does not produce ball bearings with sufficient quality for armor, aircraft, and missiles. See *Jane's Defense Weekly*, June 25, 1994, 15. In 1993, the DPRK imported ball bearings worth $2.6 million, mainly from China and Japan.

29 See Kihl 1994, 196–8.

30 The August 3 program has grown quickly, employing several hundred thousand workers by 1989. However, August 3 factories evidently use materials fit for normal production rather than only scrap. See Kihl 1994, 198.

While local self-sufficiency may be a necessity under the DPRK system, it is not necessarily a virtue. The proliferation of small-scale, makeshift factories using locally available materials and serving protected local markets suggests that both productivity and quality are low. While this approach might help consumers survive in the event that the DPRK regime collapses, local factories would have difficulty competing with efficient southern producers thereafter.[31]

E. INFRASTRUCTURE

The infrastructure underpinning the northern economy is reportedly quite poor. One official at the Lucky-Goldstar conglomerate commented that the company could function in the north only if it built the infrastructure it needed from scratch.[32] Much of the existing infrastructure utilizes Soviet, Chinese, or pre-war Japanese technology.[33]

The north relies on railroads for 90 percent of domestic freight transportation.[34] At 5,059 kilometers, a majority of which is electrified, the north's total railroad length in 1991 was 78 percent of the level in the south. The north's 23,000 kilometers of roads amounted to a substantial 40 percent of the south's level, but only 7.5 percent of the roads were paved (versus 70 percent in the south).

The north's major ports at Nampo, Chongjin, Haeju, and Wonsan are relatively primitive.[35] Only Chongjin has a container terminal and none of the ports can handle roll-on/roll-off ships.[36] Modernization of just the Najin and Chongjin ports has been estimated to cost $4.2 billion.[37]

---

31 It is not clear whether local output is fully included in foreign estimates of the DPRK's national statistics. Further, local producers have incentives to divert resources planned for other purposes. For both of these reasons, the resources used for consumer products in North Korea may be underestimated.

32 This comment was made by Kim Do-Kyoung at the Lucky-Goldstar Economic Research Institute. See *Business Korea*, October 1992,15. Others have observed that rich coal and timber reserves in the north cannot be accessed due to lack of infrastructure. See *Business Week*, July 25, 1994, 43.

33 See *Christian Science Monitor*, August 26, 1992, 11.

34 See RINU 1993, 53.

35 See *Business Korea*, October 1992, 15.

36 South Korea can handle both container and roll-on/roll-off ships at Pusan, Inchon, and Kunsan. See *Lloyd's Ports of the World*, 1993.

37 See Kwack 1994, 179.

Telecommunications facilities within the DPRK are both scarce and obsolete, although a satellite link to Japan has been established. Electric power generation is chronically short, with 1991 production amounting to between 51 and 78 percent of estimated 1991 demand.[38]

Even though the industrial infrastructure appears to be starved for investment, the DPRK has allocated considerable funding for grandiose monuments and for upgrading Pyongyang for the benefit of the elite allowed to live there. Some examples:

- Pyongyang has an efficient and beautiful subway system and the 150,000-seat May First Stadium.
- To celebrate Kim Il Sung's 70th birthday in 1982, the DPRK built an Arch of Triumph, a 60-foot bronze statue of Kim, and a 558-foot Tower of the Juche Idea.[39]
- The DPRK built the 105-story, pyramid-shaped Ryugyong Hotel at a reported cost of $6 billion. The hotel, planned for 1989, was never completed due to a dispute with the French contractor.
- The DPRK staged the 13th World Youth Festival in 1989. It spent an estimated $4.7 billion (including equipment imports) on 260 structures in the Kwangbok district of Pyongyang. This included a vast stretch of apartment buildings. It evidently also included rinks, stadiums, and amphitheaters built in 1986–88 in an abortive attempt to co-host the Seoul Olympics.[40]
- For Kim Il Sung's 80th birthday in 1992, the DPRK spent an estimated $1 billion to build apartments to house 50 thousand people in the Tongil-ro district of Pyongyang.[41]
- In the late 1980s, the DPRK completed the West Sea Lock Gate outside Nampo at a cost of $4 billion. In part, this extravagance was justified as necessary to reclaim land from the sea for farming.[42]

---

38 See RINU 1993, 52.

39 See *New York Times*, December 20, 1992, A1.

40 See *Far Eastern Economic Review*, May 30, 1991, 40, and November 29, 1990, 32.

41 See Kwack 1994, 183.

42 See Eberstadt 1995, 25.

F. AGRICULTURE

North Korea made a major effort to achieve self-sufficiency in food, in line with its general ideology of self-reliance. As indicated on Table II-7, growth in northern grain output averaged 2.6 percent per year until 1967, and less thereafter. In 1967, estimated production reached 4.1 million metric tons and an additional 0.5 million tons were imported.[43] The north may have achieved self-sufficiency in food by the 1970s, but relied on imports again in the 1980s.

Table II-7. Annual Growth in Grain Output (percent)

	North Korea	South Korea
1949-67	2.6	3.9
1967-89	1.3	0.6

Source: Hwang 1993, 244

The north's program to increase food production was broad and persistent. Techniques used included expansion of cultivated land, crop concentration, irrigation, chemicals, mechanization, seed and planting technology, and, to a minor extent, incentives.

During the 1949–89 period, the north increased its cultivated land area by 9 percent, from 1.97 to 2.14 million hectares (1 hectare equals 2.47 acres).[44] Much of the increased land area was reclaimed from the sea, with the aid of students and soldiers. In addition, the north expanded cultivation up its hillsides, using terracing and other techniques. The north has concentrated on producing rice and maize, although soy beans and vegetables are also grown. Between 1949 and 1989, land used for rice increased from 464,000 to 632,000 hectares. Maize output grew eightfold to exceed rice in tonnage.[45] Livestock production is quite low, but the north does have a large fishing fleet (and substantial seafood exports to Japan).[46]

---

43 See Kihl 1994, 192.

44 See Hwang 1993, 244.

45 Maize is evidently viewed as a cheap substitute for rice and in fact is used to make a simulated rice, *inter alia*. The current world price for maize is roughly one-third the price of rice. Maize can be produced where rice cannot.

46 See *Agricultural Outlook*, April 1992, 32.

The north developed extensive irrigation for rice paddies by the 1960s and has since concentrated on establishing sprinkler systems for dry field maize. If the north's claims are to be believed, 1.2 million hectares were irrigated by 1988.[47] Fertilizer usage was reported as 1.6 million metric tons per hectare, higher than the global average of 1 million and China's 1.5 million but far below South Korea's 4.6 million.[48]

Farm mechanization has also been a major northern objective, with a claimed 6 tractors per hectare by the late 1980s.[49] Northern farms are larger than those of the south, and more suitable for mechanization. The average northern farm size was 129 hectares following collectivization in the 1950s, with further consolidation after 1964.[50] In contrast, southern land reform in the 1950s left average farm size at 1.2 hectares, with a maximum of 3 hectares.[51] However, it is not clear what proportion of northern farms are mechanized in practice. While the two Koreas each cultivate roughly the same amount of land, South Korea's production capacity for tractors is 20 times greater than North Korea's capacity of 32,000 tractors per year (see Table II-6 above). At that rate, it would take North Korea 400 years to produce a cumulative 6 tractors per hectare.[52] Further, visitors to North Korea have reported seeing few tractors but instances of oxen or men pulling ploughs.[53]

The north has had some success in increasing yield per hectare, using both increased inputs and improved technologies. For example, new strains of rice and maize were introduced in the 1970s. Further, the north introduced the technique of starting maize seedlings under favorable conditions and then transferring them to the fields one by one.[54]

---

47 See *Korea and World Affairs*, Spring 1992, 29.

48 See World Bank 1993, 244–5. Note that high fertilizer usage may reflect poor soil conditions rather than high expected yields. The US, for example, averages only 1 million metric tons per hectare.

49 See *Korea and World Affairs*, Spring 1992, 29.

50 See Hwang 1993, 89.

51 See Eberstadt 1995, 33.

52 In 1993, North Korea imported 2,851 metric tons of tractors from Germany and 162 tractors from China. At this rate, 6 tractors per hectare will remain only a goal.

53 One observer found only one tractor per village, with farmers carrying manure fertilizer to the fields by hand. See *Christian Science Monitor*, August 26, 1992, 10.

54 See Kihl 1994, 191.

This approach, commonly used for rice, extends the growing season for maize, but it is very labor-intensive. In the period 1949-1989, rice yields increased from 2.9 to 3.4 metric tons per hectare. This result may be disappointing compared with the 4.3 tons per hectare achieved by the south in 1989, but it was accompanied by a 36 percent expansion in paddy land, presumably bringing in less productive areas.

Productivity has inevitably been held back by the difficulty of creating individual work incentives under the collective system. The collectives (and a few state farms) own the land and equipment. Farm tools and land plots are assigned to specific work teams to instill some sense of responsibility for results. Farmers are paid in kind as well as money, and some receive preferential treatment for exceeding their targets. However, the farm system has not been reformed since the 1960s, and peasant productivity is reportedly low.[55] Individuals are assigned small plots of land to plant for personal use or for sale at farmers' markets.[56]

The achievements of northern agriculture are both impressive and problematic. On the one hand, the north has achieved a substantial degree of self-sufficiency. Even in a bad year, 1992, the north produced 65 percent of its grain requirement, while the south met only 34 percent of its needs through production.[57] This was achieved despite agriculture's low priority relative to heavy industry in the allocation of investment funds. We must nevertheless question the economic wisdom of overexploiting the north's relatively poor agricultural potential. The north has a harsh climate, poor soil, and mountainous terrain. Indeed, before the two Koreas were separated, the north imported rice from the south and other grains from northeast China.[58] In pursuit of self-sufficiency, the north has planted marginal lands and kept 37 percent (in 1989) of its population tied to the farm.[59]

North Korea's agricultural sector, like its industrial sector, has been in decline in recent years, owing largely to the disintegration of communism in the Soviet Union and Eastern Europe. As shown on Table II-8, grain production peaked in 1989 and declined thereafter. By 1992, rice production had fallen 29 percent (from 1989), and corn

---

55 See Kihl 1994, 190; and Hwang 1993, 58.

56 A farmer is allowed less than 100 square meters of land. See Hwang 1993, 34.

57 The south is self-sufficient in rice but imports virtually all of its wheat and corn. See *National Unification Board Information*, April 30, 1995, 88; and RINU 1993, 47.

58 See Kihl 1994, 189.

59 This compares with 17.3 percent for the south. See Hwang 1993, 244. Note, however, that farmers account for only 25.3 percent of the north's work force. See Eberstadt 1995, 92.

production had declined 28 percent (from 1988). North Korea's grain requirement for 1993 is estimated at 6.6 million metric tons.[60] However, with 1992 production of 4.3 million tons and 1993 imports of 1 million tons, North Korea evidently experienced a shortage of 1.3 million tons, or 20 percent of the amount needed.

Table II-8. Grain Production in North Korea (million metric tons)

	1987	1988	1989	1990	1991	1992
Rice	2.0	2.1	2.2	1.9	1.6	1.5
Corn	2.9	3.0	2.7	2.4	2.1	2.1
All Grain	5.0	5.2	5.5	4.8	4.4	4.3

Sources: *National Unification Board Information*, April 1995, 90, for rice and grain, *Korea and World Affairs*, Spring 1992, 31, for 1987-88 corn; Hwang 1993, 244 for 1989 corn; and RINU 1993, 47 for 1990–92 corn.

The agricultural sector depends on the industrial sector for key inputs, including fuel, fertilizer, and equipment. Low industrial operating rates, caused by the loss of preferential trading arrangements with the socialist countries for oil and spare parts, inevitably mean reduced supplies to the agricultural sector. The decline in the DPRK's GNP must also mean fewer investment resources are available for agriculture. Other causes of the decline in agricultural output include poor weather and perhaps long-term soil depletion.[61] In any event, the decline in output has led to persistent reports of food shortages, reduced rations, and hunger in North Korea.[62] By 1995, the DPRK was requesting rice from Japan and was even willing to accept rice from the south.

G. TRADE ISSUES

1. Recent Trends

As noted above, North Korea's foreign trade suffered a severe shock after 1989, as communism disintegrated in Eastern Europe and then the Soviet Union. While the DPRK had never joined the Council for Mutual Economic Assistance (COMECON), the

---

60 See RINU 1993, 47.

61 Bad weather seems to be a perennial complaint. For example, an article in *the Far Eastern Economic Review* (November 29, 1990, 32) indicated that agriculture had suffered from bad weather for several years. Later, abnormally cold weather was blamed for poor crops in 1993. See Gong *et al.* 1994, 42.

62 For example, *Business Week* (December 30, 1991, 57) reported that the rice ration had been reduced to 26 days per month. In *Economist* (December 18, 1993, 1) there were reports of food riots, malnutrition, and restrictions to two meals per day. In 1994, the DPRK reportedly relaxed travel restrictions for people seeking food. See RINU 1993, 250.

Soviet-sponsored trade bloc, it had nevertheless relied on favorable trade arrangements with COMECON members.[63] It was able to engage in barter trade based on official agreements, with both sides exchanging goods that might not have been salable in capitalist markets.[64] It imported goods from the Soviet Union at low friendship prices, including oil, cotton, and steel. China also provided oil at subsidized prices. Then COMECON trade collapsed and the Soviet Union found itself in a severe economic crisis. Beginning in January 1991, the Soviets withdrew their subsidies and demanded that the north settle its trade in hard currency.[65] China also demanded (in 1992 and then 1993) higher prices and hard currency for oil, but it is not clear how firm they were.[66]

The severity of North Korea's trade shock is apparent on Table II-9. Overall trade was reduced by half, dropping from $5.2 billion in 1988 to $2.5 billion in 1992. Reduced trade with the former Soviet Union (FSU) accounts for virtually all of the drop, with FSU trade dropping from $2.9 billion in 1988 to less than $300 million in 1992.[67] While the FSU was North Korea's dominant trade partner in the 1980s, accounting for over 50 percent of the annual flow, by 1992 it contributed only 12 percent of the total. North Korea's trade with its other important partners, China and Japan, remained fairly steady, with some increase in imports from China.[68] Note also that the north generated a substantial trade deficit throughout the entire period. During 1987–89, the FSU absorbed 65 to 80 percent of the deficit; for 1990–92, it was China that absorbed 54 to 64 percent of the (smaller) deficit. By default, then, the disintegration of the FSU has left North Korea much more dependent on China.

---

63 See Hwang 1993, 86.

64 Under one form of barter, the Soviet Union helped the north build new factories and then took 60 to 80 percent of their output as repayment. See *Asian Survey*, September 1993, 867. The north was also able to barter its low-quality machinery and often shoddy consumer goods. See Eberstadt 1995, 134.

65 See *Asian Survey*, September 1993, 867.

66 In 1991, China reportedly raised its oil price for North Korea from $58 to $126 per ton. Payment in hard currency was agreed to in January 1992 but implementation was then postponed until at least January 1993. See Kwack 1994, 171–176. UN trade data indicates that in 1993 the north's oil imports from China were valued at $135 per ton, but the method of payment is not specified. Previously, North Korea reportedly paid in barter trade for 54 percent of its China-supplied oil, with the balance being supplied on credit. See Kihl 1994, 53.

67 Trade with the former Soviet Union was not reported for 1993. For 1994, North Korea's total trade continued to decline, with exports dropping by 3.5 percent and imports by 22.9 percent. See Foreign Broadcast Information Service, FBIS-EAS-95-145, July 28, 1995, 41.

68 Higher oil prices probably account for $80 million of the increased imports from China. See Kwack 1994, 171–176.

Table II-9. North Korea's Foreign Trade Trend by Major Partner ($millions)

	1987	1988	1989	1990	1991	1992	1993
Former Soviet Union							
Exports	777	989	1,030	703	171	65	na
Imports	1,301	1,929	1,610	1,019	195	226	na
China							
Exports	244	238	193	200	86	156	297
Imports	286	382	390	521	526	539	602
Japan							
Exports	247	327	310	481	284	259	251
Imports	223	263	211	257	225	222	217
Total							
Exports	1,670	2,030	1,950	2,020	950	920	1015
Imports	2,400	3,210	2,850	2,620	1,640	1,550	1621

Source: RINU 1993, 55–56, UN Commodity Trade Data, and FBIS-EAS-95-145, July 28, 1995, 41.

Particularly dramatic has been the reduction in oil imports. As indicated on Table II-10, oil imports fell from 2.6 million tons in 1989 to only 1.4 million in 1993, a drop of 46 percent.[69] While supplies from China have remained fairly steady, imports from the FSU have virtually disappeared. Imports from Iran have also dropped substantially, perhaps reflecting a decline in arms purchases.[70]

Table II-10. North Korea's Oil Import Trend (thousand metric tons)

	1987	1988	1989	1990	1991	1992	1993
China	1,237	1,202	1,037	1,063	1,100	1,100	1,100
USSR	800	640	506	410	41	24	na
Iran	na	na	na	980	750	220	na
Libya	na	na	na	na	na	200	na
Total	na	na	2,600	2,453	1,891	1,544	1,400

Source: Based on Kwack 1994,176; *Korea and World Affairs*, Spring 1991, 25; RINU 1993, 54; and UN Commodity Trade Data.

The impact of reduced oil imports on North Korea's economy should not be overstated. The north evidently relies on coal for 70 percent of its primary energy supply.[71] Some industrial plants have converted from oil to coal. Further, 57 percent of

69 Oil imports prior to 1989 were evidently higher, by one report totaling as much as 3.5 million tons per year. See *Wall Street Journal*, May 26,1992, 1. The north reportedly has a refining capacity of 3.5 million tons per year, now severely underutilized. See RINU 1993, 242.

70 North Korea signed an agreement with Iran in 1988 to import 2 million tons of oil per year. See Hwang 1993, 199.

71 See *Asian Survey*, September 1993, 866.

its 1991 electricity output was based on hydroelectric sources, with most or all of the rest derived from coal-fired thermal plants.[72] Electricity shortages in the north are chronic and have evidently been aggravated by recent difficulties in mining anthracite coal.[73] In fact, the north had to import 1.67 million tons of coal from China in 1993. The decline in utilization of industrial capacity also reflects the loss of imported spare parts for Soviet bloc factories and export markets in addition to energy shortages.

2. Trade by Direction and Sector

The drastic reduction of trade with the FSU left China with 42 percent of North Korea's trade in 1993. The rest, based on the data on Table II-11, is distributed mainly among Japan (22 percent), Other Asia (16 percent), and Western Europe (14 percent). Trade with Eastern Europe, at $32.8 million, is down substantially from the $232 million achieved in 1988.[74] Trade with North America is constrained by the U.S. trade embargo. Note that Table II-11 does not include trade with the FSU or Iran, and thus shows lower total trade than Table II-9 above. The DPRK has trade deficits with China and most regions, but a modest surplus with Japan, where exports exceed imports by $33.2 million.[75]

Table II-11. North Korean Trade by Partner (1993 data in $million)

Partner/Region	Exports	Imports
China	297.3	602.3
Japan	250.7	217.5
Other Asia	141.7	203.4
Western Europe	125.1	177.1
Eastern Europe	24.2	8.6
Other America	45.1	21.7
North America	0.1	6.9
Middle East	3.4	23.6
Other	5.9	0.9
Total	893.4	1,261.9

Source: UN Commodity Trade Statistics

72 See RINU 1993, 52.

73 See *Business Korea*, November 1993, 26. In 1991, electricity production amounted to 26.3 billion kilowatt hours; the north's planning goal is 100 billion. See *Asian Survey*, September 1993, 866.

74 See Hwang 1993, 200.

75 Almost 80 percent of trade between North Korea and Japan is reportedly managed by Koreans living in Japan. See *Asian Survey*, September 1993, 871.

North Korea's trade with Japan and the West has been problematic because of North Korea's poor credit rating. For example, during 1970–74, the north expanded imports from Japan and the West by a factor of 13. For the most part, this involved capital equipment imports financed by hard currency loans that the north proved unable to repay.[76] Trade plummeted after 1974, and by 1976 the north was formally in default on the loans. Since that time, the north has earned a reputation as an extremely poor credit risk. It has repeatedly defaulted on loans and failed to live up to its commitments under rescheduling and debt reduction agreements.[77] The Japanese and German governments have had to reimburse their companies for losses experienced in trade with North Korea.[78] Western companies now demand cash before delivery. For example, the German company Siemens installed new traffic signals in Pyongyang but refused to turn them on until it was paid.[79]

As indicated on Table II-12, North Korea's foreign debt reached \$10.3 billion by 1993, with most if not all of that in default. The north's debt amounts to 50 percent of its GNP and over 10 times its annual exports. Clearly, without a substantial increase in its exports, the north has no reasonable hope of restoring its credit rating and expanding commercial imports from Japan and the West.

---

76 See Eberstadt 1995, 21. It is not clear whether the North was unable to make the imported equipment productive or whether it simply does not take credit obligations seriously.

77 During 1976–83, the north rescheduled its \$600 million debt to Japan three times. In 1986, with the north still in default, Japan suspended its export insurance program for the north and permitted only trade that could be settled in cash. See Kihl 1994, 113. In 1987, 140 European banks sued for nonpayment, threatening to seize North Korean assets in the UK. The north agreed to reschedule its \$750 million debt dating from the early 1970s, gaining 12 years for repayment. In 1988, the north agreed to pay 30 cents on the dollar (by 1991) to settle a bank debt of \$900 million. In 1987, a Korean-owned company in Japan invested in a joint venture to develop a gold mine at Unsan, North Korea, to help repay the debt to Japan. See Hwang 1993,198.

78 In 1986, the Japanese government paid \$194 million in insurance to unpaid firms. See *Asian Survey*, September 1993, 872. The German government paid \$133 million to companies that could not collect from the North. See the *Far Eastern Economic Review*, May 30, 1991, 40.

79 See *Far Eastern Economic Review*, November 29, 1990, 30.

Table II-12. Foreign Debt of North Korea
($billions)

	Total	West	Russia	Other
1975	2.1	na	na	na
1980	3.5	na	na	na
1986	4.1	na	na	na
1987	5.2	2.8	1.8	0.6
1988	5.2	2.7	na	na
1989	6.8	2.7	3.9	0.1
1990	7.9	na	4.0	na
1991	9.3	3.5	4.6	1.2
1992	9.7	3.6	na	na
1993	10.3	na	4.0	na

Source: Based on RINU 1993, 57; Hwang 1993,198, and various periodicals.

The general types of products traded by North Korea are profiled on Table II-13. Manufactured goods dominate the north's exports, accounting for 71 percent of the total. While this is slightly below the worldwide average of about 75 percent, it is above the 46 percent level for lower-middle-income countries with similar per capita GNPs.[80] For South Korea, the manufacturing share of exports is 91 percent. Food and crude materials also have significant shares in the north's exports. The north's imports are less heavily weighted toward manufactures, which have a 55 percent share, far below the worldwide average of 74 percent, the 73 percent share for countries with similar per capita incomes, and the 65 percent share for South Korea. In other words, the north's imports include an unusually high share for food, fuel, and crude materials.

Table II-13. North Korean Trade by Type Product
(1993 data in $ 000)

Type Product	Exports	Imports
Food and live animals	99.7	167.6
Beverage and tobacco	0.8	20.0
Crude materials	85.8	102.6
Mineral fuels	30.2	249.8
Animal and vegetable oil	0.9	14.1
Chemicals	27.7	113.2
Basic manufactured goods	326.4	261.3
Machinery and transport equipment	97.7	242.8
Miscellaneous manufactured goods	182.6	76.4
Other goods and transactions	41.7	14.3
Total	893.5	1,262.1

Source: UN Commodity Trade Statistics

80 See World Bank 1993, 268–9.

North Korea's trade profile seemingly reflects its emphasis on industrial production, fueled in part by imported materials. The DPRK tends to import machinery and export other manufactured products. The scarcity of manufactured imports suggests the degree to which the DPRK has repressed consumption. Overall, the north's profile is similar to that of the south.

As shown on Table II-14, North Korea's trade with China, its most important partner, is dominated by a few sectors. Basic manufactured goods account for 78 percent of the north's exports. The category is dominated by exports of 830,000 tons of iron and steel shapes worth $206 million. The other significant export item is 440,000 tons of lime, cement, and construction materials worth $19 million. The north's imports from China are dominated by food and fuel. In the food category, North Korea imported 880,000 tons of maize worth $94 million. In the mineral fuels category, North Korea imported 1.03 million tons of crude petroleum worth $140 million. It also imported 1.67 million tons of coal worth $74 million. China evidently finances the north's $305 million bilateral trade deficit, having little need for cheap DPRK manufactured products other than basic steel.

Table II-14. North Korean Trade with China (1993 data in thousands)

Type Product	Exports	Imports
Food and live animals	12.2	135.3
Beverage and tobacco	0.1	4.5
Crude materials	24.4	50.3
Mineral fuels	8.3	237.9
Animal and vegetable oil		7.6
Chemicals	8.0	50.0
Basic manufactured goods	232.4	63.4
Machinery and transport equipment	9.5	40.0
Miscellaneous manufactured goods	2.3	13.4
Other goods and transactions	-	-
Total	297.2	602.4

Source: UN Commodity Trade Statistics

North Korea's trade with Japan, as shown on Table II-15, is quite different than that with China. The north's largest export is $92 million worth of clothing in the miscellaneous manufactured goods category. This reflects the north's low wages and particularly the investment of Korean-Japanese in joint-venture clothing plants in the north.[81] The next largest export category is food, including shipments of $53 million in fish and seafood and $22 million in vegetables. Sizable shipments in other categories

81 Some 80 percent of the north's trade with Japan is said to be managed by Korean-Japanese. *See Asian Survey*, September 1993, 871.

include 460,000 tons of coal worth $20 million and 24,000 tons of zinc for $24 million. The north's imports from Japan consist almost entirely of manufactured goods. The largest import category, machinery and transport equipment, is dominated by passenger car imports worth $41 million.[82] Under the basic manufactured goods category, $51 million in textiles are imported, most likely by the joint-venture clothing plants mentioned above.

Table II-15. North Korean Trade with Japan (1993 data in thousands)

Type Product	Exp	Imp
Food and live animals	83.9	2.4
Beverage and tobacco	0.4	0.4
Crude materials	10.7	1.2
Mineral fuels	20.5	2.1
Animal and vegetable oil	-	0.1
Chemicals	1.5	10.5
Basic manufactured goods	34.3	69.8
Machinery and transport	4.5	92.6
Miscellaneous manufactured	94.2	25.9
Other goods and transactions	0.7	12.6
Total	250.7	217.6

Source: UN Commodity Trade Statistics

Table II-16 provides a historical perspective, showing the average composition of previous DPRK trade with the Soviet Union. The trade profile here looks very much like that for DPRK-China trade. The north exported mainly basic manufactured goods, presumably steel. Imports include mineral fuels and food. Perhaps the major difference is that North Korea imported a significant amount of machinery and transport equipment from the USSR but not from China.

82 The significance of the passenger car imports is not clear. There are reports of used Toyotas and Nissans gradually appearing in Pyongyang. See *Wall Street Journal*, May 26, 1992, 3. There are also reports of East European cars being smuggled from North Korea to China to evade Chinese tariffs. See *Business Week*, July 25, 1994, 42.

Table II-16. North-Korea's Trade with USSR by Sector (Average for 1962-87, in $millions)

Sector	Exports	Imports
Food and live animals	31.7	23.6
Beverage and tobacco	6.0	0.0
Crude materials	9.8	16.2
Mineral fuels	0.0	134.9
Animal and vegetable oil	0.0	0.0
Chemicals	9.6	0.0
Basic manufactured goods	138.8	19.3
Machinery and transport equipment	21.7	82.5
Miscellaneous manufactured goods	30.7	6.5
Other goods and transactions	15.9	93.0
Total	264.0	376.0

Source: Derived from Kwack 1994,193.

What are the north's comparative advantages? We would expect a fairly low-wage country such as North Korea to have an advantage in labor-intensive manufactures, e.g., clothing. In fact, the north does export clothing worth $164 million, including $92 million to Japan and $66 million to Western Europe. The north should also have an advantage in such resource-intensive industries as seafood ($53 million sold to Japan). The north might have a potential advantage in steel, given its iron ore deposits, but its industry lacks the requisite scale and technology. While the north does export $219 million in steel products, 94 percent of that is sold to China, probably as a barter offset for the oil and food China must ship to North Korea. The north should also have a comparative advantage in coal, given its large deposits. However, it achieved a trade deficit in coal in 1993, exporting $23 million and importing $79 million.

3. North-South Trade

Trade between North and South Korea was virtually nonexistent when the ROK liberalized its trade regulations in October 1988. Since then, trade levels have increased significantly. As indicated on Table II-17, the volume of two-way trade increased eight-fold between 1990 and 1991 and reached almost $200 million by 1994. The 1993 estimate amounts to 7.1 percent of the DPRK's total trade for that year as reported above on Table II-9. Note also that North Korean exports account for over 90 percent of north-south trade.

Table II-17. North Korea's Trade with South Korea ($millions)

	Exports	Imports	Total
1990	12.3	1.2	13.5
1991	105.7	5.5	111.2
1992	162.9	10.6	173.5
1993	178.2	8.4	186.6
1994	176.3	18.2	194.5

Source: National Unification Board, as reported *in Far Eastern Economic Review*, June 22, 1995, 50.

Most north-south trade is conducted indirectly via third countries such as China, Japan, and Hong Kong, making it difficult to estimate trade levels. In particular, some portion of North Korea's trade with the south may be included in its reported trade with other countries. The north's $178.2 million in 1993 exports to the south could thus account for as much as 26 percent of its reported exports to Asia, or could represent a 26 percent addition to those exports.[83] In either case, the south has become an important customer for the north.

Direct north-south trade remains rare, but it does occur from time to time.[84] For example, in November 1988, 40 kilograms of clams were shipped directly from the north to Pusan, South Korea. In a celebrated July 1991 trade, the south's Cheonji Trading Company shipped 5,000 tons of rice (worth $1.75 million in unmarked bags) directly from Makpo, South Korea to Najin, North Korea, using a freighter registered in the Caribbean. Unfortunately, the north did not reciprocate with its promised shipment of anthracite coal and cement. Cheonji had to draw on a special government fund to defray its losses.[85] On July 22, 1994, the north shipped down jackets directly from Nampo, North Korea to Inchon, South Korea, but the direct route was still considered atypical.[86]

The north sells mainly raw and intermediate materials and buys mainly rice and intermediate materials. Commodity shares for 1991 and the first six months of 1992 are shown on Table II-18.

---

83 On the other hand, the north's exports to the south may be overstated. Since the ROK provides duty-free treatment for such exports, Chinese companies, for example, have an incentive to claim that their own exports to South Korea originate in North Korea. See *Far Eastern Economic Review*, March 26, 1992, 59.

84 The south reportedly lifted its long-standing ban on direct trade, following the October 1994 nuclear agreement between the US and North Korea. See *New York Times*, November 11, 1994.

85 See *The Washington Post*, April 29, 1992, F01.

86 See *Far Eastern Economic Review*, August 4, 1994, 50.

Table II-18. Commodity Shares of North-South Trade Jan 91–Jun 92 (percent)

Northern Exports	
Ores	33
Nonferrous metals	26
Construction equipment	11
Steel	8
Fisheries	7
Agricultural/Forest	6
Cement	2
Anthracite coal	1
Textiles	1
Other	5
Total	100

Southern Exports	
Chemicals	55
Steel	15
Rice	11
Diesel Oil	10
Color TVs	3
Textiles	2
Other	5
Total	100

Source: Based on Hwang 1993, 256–257, 303

As noted above, the direction of trade is overwhelmingly from north to south, with the north's exports being 10 to 20 times greater than its imports. The great imbalance is due to a lack of foreign exchange in the north and to the north's reluctance to expose its population to southern goods. Indeed, the north generally prohibits markings that would identify imports as originating in the south, particularly for goods destined for the general population.[87] The imbalance also reflects the encouragement given to north-south trade by the ROK government, amounting to an indirect form of foreign aid. For example, the Inter-Korean Economic Cooperation Fund was established to reimburse southern companies for their losses in north-south trade.[88] Further, the ROK views imports from the north as domestic trade not subject to import tariffs.[89]

H. FOREIGN INVESTMENT

1. General Conditions

Since 1984, the DPRK has made an effort to attract foreign direct investment (FDI), but it has had only limited success. The initial law permitting foreign investors to form joint ventures with North Korean enterprises was promulgated on September 8, 1984, and

---

87 See Kihl 1994, 202–203.

88 Southern companies may buy substandard northern products for political reasons, and may be paid by the fund for products they sell to the north. See *The Washington Post*, April 29, 1992, F01. In 1991, some $34.4 million was budgeted for the fund. See *Far Eastern Economic Review*, May 30, 1991, 38. In many cases, northern goods are of poor quality or even useless. See *Business Korea*, April 1993, 28 and *Korea and World Affairs*, Spring 1992, 39.

89 President Roh Tae Woo set this policy in 1988.

additional measures were enacted in 1985.[90] Aiming particularly for investors from Japan and Western Europe, the DPRK offered such incentives as duty-free imports, 3-year tax holidays, and reduced tax rates.

In 1990, some 54 joint ventures were operating in North Korea. The General Association of Korean Residents (Ch'ongryon) in Japan, or its pro-Pyongyang members, accounted for 47 of these.[91] Altogether, Ch'ongryon-related investments totaled to less than $94 million as of the end of 1989.[92] In addition to the Chongryon investments, the USSR and China made three investments apiece, and the French invested in one hotel. The joint ventures were concentrated in Pyongyang, which accounted for 37 of the 54 investments. Some 33 of the 54 ventures were manufacturers, including 7 clothing factories and 5 processors of marine products.[93] As noted above, clothing and seafood figure prominently in the DPRK's exports to Japan. The remaining 21 joint ventures were in service industries, including 8 restaurants.[94]

Since 1990, approximately 40 additional investment agreements have been signed. The cumulative total from 1984 to 1993 is estimated at 140 projects amounting to $150

---

90 The laws were modeled after those enacted in China. Kim Il Sung himself visited the special economic zone at Shenzhen China in 1984. See Hwang 1993, 207–10, 275.

91 The DPRK accepted Ch'ongryon investments as patriotic and less likely to contaminate its economic system than other capitalist investments. The Ch'ongryon projects nevertheless experienced considerable management problems. See *RINU Newsletter*, June 1995, 8.

92 This estimate assumes an exchange rate of 120 yen per dollar. In yen terms, total investment was 11.3 billion yen. This amount includes some 102 signed agreements although only 47 projects were in operation in 1990. The average amount per agreement is under $1 million. See Hwang 1993, 211. Of course, the Ch'ongryon investments are quite small relative to the flow of remittances, for example, from Korean-Japanese to relatives in North Korea. Perhaps $100 million per year is sent via banks and $400-900 million more is carried by individual travelers and other methods. See Gong *et al.* 1994, 19 and *Wall Street Journal*, June 9, 1994, 1–2.

93 Examples of Ch'ongryon-related investments include the Patriotic Moran Garment Factory in Pyongyang (actually, not opened until 1991), with 1000 workers sewing suits for Japanese stores. See *Christian Science Monitor*, August 26, 1992, 37. Another example is the highly automated Taedoksan plant in Pukchong, opened October 7, 1990, with the capacity to process 4,000 tons of marine products annually. See Hwang 1993, 211.

94 The first joint venture was the Ch'ongryon's Paradise Department Store, which opened the first of 31 branches in February 1985 to sell mainly imported goods for hard currency. A noteworthy Chinese investment is the 2000-seat Chongchun Restaurant in Pyongyang, which opened on October 27, 1990. See Hwang 1993, 210–1.

million.[95] While 90 percent of these are Ch'ongryon related, there have been a handful of Western investments, including one by Korean residents of the United States.

At this time, the principal advantage of investing in the north is the low cost of labor. Wage rates are much lower than in the south, although they equal or surpass those of other potential investment hosts. Average monthly wages according to one recent comparison are:[96]

	Wage
North Korea	$150
China	$100
Vietnam	$50
South Korea	$1,200

Some reports place North Korean wages much lower than this.[97] On the other hand, it would not be out of character for the DPRK to charge foreign investors more for labor than the workers would receive.[98] In any case, North Korea must offer more than just low wages if it hopes to attract foreign investment. For example, its language and location should prove attractive to southern investors.

There is not much information available on the potential productivity of northern workers. On the positive side, they are free from militant unions and, according to some, disciplined.[99] The north has mandatory free education for 11 years and claims a literacy rate of 95 percent.[100] Northern workers may also be relatively healthy since the government provides free health care and claims an average life expectancy of 69 years,

---

95 This would make the average agreement $1.3 million. Five to 10 investments exceeded $5 million apiece or $60 million in total. The rest were around $1 million each. Most investments were 50:50 joint ventures. See *RINU Newsletter*, June 1995, 8.

96 See *Forbes*, September 12, 1994, 179.

97 *Business Week*, July 25, 1994, 43 estimates average wages at $50 per month, while *Far Eastern Economic Review*, July 25, 1994, places them at $75. In terms of North Korean currency, 1989 wages ranged from 70 won for unskilled laborers to 130 won for steel workers. At the trade exchange rate of 2.10 per dollar, these wages amount to $33 and $62, respectively. At the official exchange rate of .97 won per dollar, the wages are $72 and $134. See Hwang 1993, 64 and 129.

98 For example, the north offered to send construction workers to Thailand to help pay for rice imports. The north sent 16,000 to 20,000 forestry workers to Russia to work under grim, almost penal conditions. Such workers are clearly paid much less than they earn for the DPRK. See *Far Eastern Economic Review*, May 30, 1991, 40.

99 See, for example, *Business America*, August 24, 1992, 13.

100 See Hwang 1993, 125. The north reportedly has a higher percentage of its adult population that has attended post-secondary schools than the south, namely 13.7 percent versus 9.2 percent. See Eberstadt 1995, 113.

comparable tothe south's 70 years (in 1988). In addition, they speak Korean, a particular advantage for investors from the south. On the other hand, the quality of the DPRK's health care isunclear and much of its formal education concentrates on ideology.[101] Further, North Korea apparently experiences the same difficulties motivating its workers as other communist countries.[102] The Daewoo conglomerate, for one, has learned that it must retrain North Korean workers for its consignment joint ventures.[103]

The limited interest to date in investing in North Korea is not surprising. The north is not a particularly hospitable location. Its infrastructure is poor, including ports, roads, railroads, energy supplies, and communications. Government regulations are stifling, and DPRK laws and attitudes recognizing private property and rational business practices are very primitive.[104] Further, the investor must wrestle with the DPRK's nonconvertible currency and abysmal credit rating. The north's outlaw behavior subjects it repeatedly to economic sanctions, including particularly the U.S. embargo on financial dealings. Finally, the north remains highly militarized and investors must weigh the risk of another war.

The DPRK nevertheless persists in its efforts to attract foreign investment. It established several free economic and trade zones and, in 1992, enacted three supplementary laws on joint ventures. Within the special zones, wholly foreign-owned enterprises are permitted, the corporate profit tax rate is reduced to 14 percent (versus 25 percent elsewhere), duty-free imports are allowed, and infrastructure improvements are planned.[105] Investors are given assurances on remittance of profits and protection against nationalization and may be permitted to lease land within the zones. Visa requirements for entry to the zones may also be relaxed. These efforts, however, evidently have not stimulated a major increase in foreign investment.

---

101 In high schools, 60 percent of class time is reportedly spent learning Kim Il Sung thought. See Eberstadt 1995, 122. At the university level, perhaps two-thirds of class time focuses on ideology and politics. See Henriksen and Lho 1994, 21. Lack of foreign contact also degrades educational quality.

102 See Henriksen and Lho 1994, 37. Party leaders reportedly yell at factory workers to encourage them to work harder; brass bands play at construction sites to motivate construction workers. See Christian *Science Monitor*, August 26, 1992, 10. The DPRK has also offered workers bonuses for exceeding plan targets. See Hwang 1993, 31–32.

103 See *Business Week*, July 25, 1994, 43.

104 The DPRK reportedly treated some of the Ch'ongryon joint ventures as patriotic donations rather than business investments. See Kwack 1994, 180.

105 See *Asian Survey*, September 1993, 870. See also RINU 1993, 248 and Kihl 1994, 201.

A free economic and trade zone was announced in December 1991 for Najin and Sonbong districts in northeast Korea, including free trade ports there and in nearby Chongjin.[106] Foreign vessels will be allowed in the ports. A total of 621 square kilometers were designated.[107] This is a remote, sparsely populated, mountainous area, ideal for limiting contact between foreigners and the domestic population. It is located near China and the Tumen River border with Russia and figures prominently in the Tumen River development scheme espoused by the United Nations Development Program (UNDP). While the $30 billion UNDP proposal to develop regional infrastructure and multinational cooperation appears stillborn, the possibility remains that the area could be developed as a processing center and transportation outlet for the resources of the Chinese and Russian hinterlands.[108] The area also includes oil and gas reserves. While infrastructure in the zone remains primitive, contracts were reportedly signed with six foreign investors in 1994, including Chinese and Russian firms.[109]

The prospects for US investment in the north improved somewhat following the October 1994 nuclear framework agreement, as the US slightly eased its rules on travel to the north, including the use of credit cards and telephone calls.[110] While investment remains banned, companies such as Coca Cola, AT&T, Bechtel, and Hewlett Packard are

---

[106] The Najin-Sonbong free economic and trade zone was described as still a paper scheme in 1994 in RINU 1993, 248. See also, *Korea Observer*, Winter 1993, 491, and the *Economist*, July 16, 1994, 19.

[107] See Kwack 1994, 178. Foreign investors are offered a 5-year tax holiday before the maximum 14 percent corporate rate is imposed. See *Far Eastern Economic Review*, November 10, 1994, 48.

[108] On March 19, 1993, for example, China and North Korea signed a bilateral treaty that gives China access to the port facilities at Najin. See Kihl 1994, 62. The larger scheme, however, has been stymied by the competing development interests of North Korea, China, and Russia and the disinterest of potential Japanese investors. Cooperative efforts in the region, however, will continue. See *Far Eastern Economic Review*, November 10, 1994, 46.

[109] The north cannot afford to develop the infrastructure. In one case, it offered to transfer cargo without charge in exchange for new roads and cranes. The DPRK had been counting on the UNDP project to attract infrastructure funding. See *Far Eastern Economic Review*, November 10, 1994, 48. Some North Korean officials estimated the cost of modernizing Najin and Chongjin alone at $4.2 billion. See Kwack 1994, 179.

[110] Under the Foreign Assets Control Regulations of the Trading with the Enemy Act and the Export Administration Act, the US prohibited most commercial and financial transactions. The major exceptions included travel expenses and humanitarian goods. See Kihl 1994, 73. In February 1995, the US eased the embargo to permit phone calls, credit cards, some banking services, and purchase of magnesite, a mineral used to line blast furnaces. See *Far Eastern Economic Review*, February 2, 1995, 53.

reportedly interested in future northern business.[111] European companies are also exploring the north's potential.

2. South-North Investment

South Korean investment in the north has thus far been limited to a few cases of consignment investment. Under this approach, southern companies provide production equipment, materials, and perhaps technicians to the north. Goods are produced in northern factories under the north's management and then shipped to the south for marketing. The DPRK is thereby able to minimize the visibility of its dealings with the south.[112] Beginning in 1989, for example, the south's Kolon International Corporation shipped fabrics north to be sewn into school bags and backpacks. Company officials dealt with middlemen in Hong Kong or Beijing and were not allowed to visit the factories or talk directly with factory managers.[113] The South's Lucky-Goldstar conglomerate engaged in 10 consignment projects in 1991–92, shipping materials north for processing and then marketing the products, for example, panda toys for China. Samsung easily sold 10,000 pairs of jeans assembled in the north and planned to increase its order to 100,000.[114] Altogether, the north's consignment exports are estimated at $4.4 million for 1993 and $10 million for the first half of 1994.[115]

When the two Koreas signed a reconciliation agreement and a denuclearization declaration in December 1991, a rush of southern investment in the north appeared imminent. The ROK's President Roh Tae Woo told the heads of the 10 largest conglomerates to make plans for trade and government-aided investment with the north.[116] The north too presented a flood of investment proposals. The port city of Nampo, near Pyongyang, was designated a duty-free trade zone and southern companies were invited to

---

111 See *New York Times*, November 8, 1994, 19 and *Far Eastern Economic Review*, January 26, 1995, 56.

112 Open investment by the Ch'ongryon Koreans in Japan is evidently more acceptable because they can be depicted as pro-communist and patriotic. Formal recognition of consignment investment (i.e., contractual joint ventures) was provided in the 1992 legal revisions. See Kihl 1994, 201.

113 See *New York Times*, November 8, 1994, 20. Kolon also produces socks on consignment in the north, using southern materials and machinery and, reportedly, a southern supervisor. See *Far Eastern Economic Review*, August 22, 1991, 7.

114 See *Business Korea*, April 1993, 4.

115 See *Economist*, July 16, 1994, 20.

116 See *Business Week*, December 30, 1991, 57. The ROK approved 99 applications by southern companies to talk to the north about economic cooperation. See *Wall Street Journal*, October 21, 1992, 1.

set up light industry projects.[117] The Daewoo conglomerate, for example, agreed in January 1992 to establish nine industrial plants at Nampo for consignment production of simple products such as clothing, shoes, luggage, toys, utensils, televisions, and refrigerators.[118] Daewoo would provide equipment and technical personnel to set up the plants. Then, the plants would be run by North Koreans, using materials and designs provided by Daewoo, which would market the output.[119]

However, as early as February 1992, the ROK government held up the Daewoo investment until the issue of nuclear inspections could be resolved.[120] Then, on March 15, 1993, the ROK's President Kim Young Sam blocked all northward investment following the north's March 12 announcement that it would withdraw from the Nuclear Proliferation Treaty (NPT).[121] That ban was not lifted until November 6, 1994, following the October 21, 1994, nuclear framework agreement between the US and North Korea.[122]

In summary, the north recognizes that it needs foreign investment but has not created conditions that would attract it on a large scale. The north's efforts to preclude contamination of its population by foreign investors further limits its potential as an investment host. The north evidently hopes to restrict foreign investors to an invisible role in consignment factories or else shunt them off to remote areas such as

117 See *Korea Observer*, Winter 1993, 487. While foreign-invested process factories in Nampo will evidently be allowed to import inputs without paying duty, only the Najin-Sonbong area will offer the full privileges of a free economic and trade zone.

118 Production might later be expanded to include electronics and other more complicated products. See Kihl 1994, 201. Daewoo contemplated an initial investment of $7 million. See *The Washington Post*, April 29, 1992, F1.

119 Daewoo already had had garments assembled on consignment in the north. It felt quality was a problem and that its engineers and technicians would have to train northern workers for its proposed Nampo complex. See *Business Week*, July 25, 1994, 43.

120 See *Wall Street Journal*, February 26, 1992, 1.

121 See *New York Times*, March 16, 1993, 3.

122 See *New York Times*, November 11, 1994. In May 1995, the ROK gave specific approval for a joint venture by Daewoo Business Group. See *RINU Newsletter*, June 1995, 9. In an unprecedented arrangement, the north will reportedly give 1-year residence permits to seven Daewoo production supervisors and allow another six Daewoo employees to stay for two months to install machinery. Presumably, this will allow daily contact with northern workers. While the ROK approves Daewoo's $5.1 million investment, it reportedly would frown upon much larger deals. See *Far Eastern Economic Review*, September 14, 1995, 63.

Najin-Songbong.[123] For political reasons, the ROK will likely encourage northward investment even on these terms, so long as the north is cooperative.[124] Perhaps non-Korean investors will then take advantage of modern infrastructure provided by the south.

123 There is some fear that the north will opt to provide contract labor, assigning workers to isolated foreign-invested factories and paying them only a portion of the proceeds. The DPRK has taken this approach in various oil, coal, and timber projects in the Russian Far East. See *Asian Survey*, September 1993, 871.

124 In 1991, northern officials for the first time said that South Korean firms would be welcome to invest in free economic zones. See Kwack 1994, 177. The south has also expressed its interest in bilateral development of the Najin-Songbong zone, for example, with the South's Korea Maritime and Port Administration developing ports. See *Far Eastern Economic Review*, November 10, 1994, 47–48.

III. ECONOMIC IMPACT OF GERMAN REUNIFICATION

Following unification with West Germany, the former East German economy underwent a transformation to a largely privately owned market economy. The German experience serves as the archetype for scenario 1 in this paper. The union took place with little or no warning. West German Chancellor Kohl proposed economic union on February 7, 1990. A treaty for currency, economic, and social union was signed on May 23, 1990, and went into effect July 1, 1990, even before the political union of October 3, 1990. What followed was a cushioned but nevertheless traumatic dismantling of the east's economy. The following discussion seeks particularly to understand why the German experience was so costly.

Understanding the German experience is important because it highlights issues that Korea too will have to resolve. Unification proved to be inordinately expensive, in part, because of the particular policies implemented by the German government. Korea may be able to improve on the German results by choosing different policies and, if events permit, different scenarios.

Note that, in the following discussion, "west" refers to the area of the former West Germany while "east" denotes the location of the former East Germany. The East German government was known as the German Democratic Republic (GDR). The West German government, now the unified German government, is known as the Federal Republic of Germany (FRG).

A. COLLAPSE OF EASTERN ECONOMY

1. Output and Employment

Reunification resulted in a sudden and severe drop in industrial output. Earlier, in 1989, output had increased at a mediocre 2.5 percent rate.[1] By December of that year, following the opening of the east-west border in November, output was down 3 percent compared with December 1988. The decline gradually gathered momentum in 1990, reaching 4.5 percent for the first quarter and 9.5 percent for the second. Then, following

1 See Lipschitz and McDonald 1990, 54.

economic union on July 1, 1990, the bottom dropped out. By August, output was 50 percent below that of a year earlier. By August 1991, output was 67 percent below its August 1989 level.[2] Industrial output levels may have stabilized during 1992.[3]

The decline in gross domestic product (GDP) for East Germany was less severe than the fall in industrial output since output declines were milder in construction, services, and public administration. GDP nevertheless fell a cumulative 33 percent by the end of 1991, i.e., 14 percent in 1990 and 22 percent in 1991.[4] Thereafter, GDP resumed its growth, rising 6.8 percent in 1992, perhaps 5.5 percent in 1993, 9 percent in 1994, and an estimated 9 percent in 1995.[5]

Employment has taken a similar tumble, in both industry and other sectors. As indicated on Table III-1, total employment dropped from 9.8 million at the beginning of 1989 to 6.5 million at the end of 1991, a drop of 33.6 percent.[6] The drop paralleled the slump in output but, at least initially, was not as severe. Employment in mining and manufacturing, for example, was down only 15 percent in the third quarter of 1990, a modest reduction compared to the 50 percent drop in industrial output mentioned above. Similarly, the 47.1 percent reduction in mining and manufacturing employment by the fourth quarter of 1991 was milder than the 67 percent output drop by August 1991. Layoffs, however, continued in 1992.

Table III-1. East German Employment by Sector and Quarter (thousands)

					Reduction	
	1989-1	1990-2	1990-3	1991-4	Total	%
Agriculture	956	840	775	400	556	58.2
Mining/Manufacturi	3,613	3,385	3,070	1,910	1,703	47.1
Construction	588	481	465	465	123	20.9
Services	2,126	1,970	1,946	1,700	426	20.0
Public Sector	2,471	2,449	2,405	2,005	466	18.9
Total	9,754	9,125	8,661	6,480	3,274	33.6

Source: Based on Ghaussy and Schafer 1993, 67.

The loss of 3.3 million jobs has severely disrupted the East German population. By the fourth quarter of 1991, at least 1.56 million people had left the East German work

2 Based on data in Lipschitz and McDonald 1990, 54; and Ghaussy and Schafer 1993, 44.

3 See Sinn and Sinn 1994, 31.

4 See *Washington Post*, January 5, 1992, C3.

5 See RINU 1993,144 for 1992–93 and *New York Times*, July 27, 1995, D7 for 1994–5.

6 See Ghaussy and Schafer 1993, 46, 64, 67.

force, of whom 509,000 emigrated, 386,000 found commuter jobs in the west, and 665,000 retired prematurely.[7] Another 1.565 million people remained in the formal work force without jobs. Of these, 1.05 million were registered as unemployed, 360,000 were enrolled in government make-work programs, and 155,000 were in full-time training programs. Further, the 1991 fourth quarter employment totals included an estimated 1.2 million workers on short-time status, working roughly half of their normal hours. While registered unemployment amounted to 12.8 percent of the (reduced) work force, effective unemployment was 19.1 percent if those in make-work and training programs are included and 27.4 percent when the idle time of short-time workers is added.[8]

2. Transfer Payments

The west initiated a massive transfer of funds to maintain the standard of living in the east. As a result, despite the economic collapse, household disposable income did not fall overall and actually improved for many.[9] In turn, while emigration from east to west continued at a substantial pace, it remained well below the levels experienced when the border was initially opened.[10]

Total governmental transfers (in billions of dollars) are estimated as follows:[11]

	Transfers
1990	67
1991	88
1992	104
1993	113

7 Others became discouraged and dropped out of the formal work force. For example, the female participation rate dropped substantially. See Sinn and Sinn 1994, 170. Also, through 1992, some 90,000 foreign guest workers were expected to depart from East Germany. See Ghaussy and Schafer 1993, 46.

8 In addition, many redundant workers were still counted as fully employed. For example, during 1991, some 175,000 employees in the public administration were being paid temporarily while awaiting dismissal. See Ghaussy and Schafer 1993, 46.

9 See Sinn and Sinn 1994, 31, 68, 79.

10 The monthly outflow averaged 72,000 easterners from November 1989 through March 1990. For all of 1990 and 1991, an average of 21,000 workers emigrated each month. While the average worker had almost one dependent (in 1989), those who emigrated tended to be young with fewer dependents. For example, a 1991 Der Spiegel poll indicated that easterners planning to emigrate included 11 percent of those under 30, 8 percent of those between 30 and 44, and virtually no pensioners. See Ghaussy and Schafer 1993, 225–226.

11 See RINU 1993, 154. An exchange rate of 1.5 Deutschemarks per dollar is used here.

This high rate of transfers, amounting to 5.6 percent of the west's gross domestic product (GDP) in 1991, was financed by borrowing as well as higher taxes. Substantial transfers are expected to continue for years to come.[12]

An estimated 64 to 75 percent of the transfers were used to support living standards, for example, through social welfare and subsidies to enterprises.[13] Much of the rest was used for investment in public infrastructure and incentives for private investment. Actual governmental expenditures in the east were somewhat greater than the transfers, whose estimates are net of taxes collected in the east.[14]

A variety of programs was employed to cope with unemployment. For those registered as unemployed, the Federal Labor Office paid benefits amounting to 68 percent of normal eastern net wage income.[15] It supported short-time workers at the same rate and also subsidized training programs, paying participants at a 65 percent rate. In addition, make-work jobs paying full union-level wages were created, for example, to improve infrastructure or support social programs. Redundant employees of the former East German government received 70 percent of their previous gross pay for 6 to 9 months as holding pay before they were finally laid off.[16] To an important extent, other subsidies enabled enterprises to retain redundant employees. Finally, after unemployment benefits were exhausted, welfare benefits were available.[17]

Transfers to the east were also used to cover huge state and municipal government deficits and other social expenses. For example, planned 1991 expenditures by the five new state governments amounted to $65 billion, versus estimated tax revenues of $10 billion. The former GDR government had depended primarily on enterprise profits for its revenue. After unification, however, enterprise profits collapsed and new public

---

12 By one estimate, cumulative transfers could eventually reach between $600 and $1,300 billion. See Eberstadt 1995, 154.

13 A 75 percent share for social welfare and subsidies is estimated for 1990–92 in Henriksen and Lho 1994, 52. A 64 percent share for social welfare in 1992 is estimated in Ghaussy and Schafer 1993, 41, 48.

14 In May 1991, state and municipal tax revenue in the east was forecast at $14.2 billion for 1991 and $18.3 billion for 1992. See Ghaussy and Schafer 1993,78. It is not clear whether this includes payroll taxes for social programs. Another observer estimated 1992 tax revenue at $23.3 billion. See Kihl 1994, 267.

15 See Sinn and Sinn 1994, 191-2.

16 In the first half of 1991, 100,000 to 200,000 people received holding pay. See RINU 1993, 130.

17 Unemployment benefits were normally paid for at most 2 years. Subsequent welfare benefits were reportedly lower. See Sinn and Sinn 1994, 201.

administrations were not yet competent at collecting taxes under the newly adopted West German tax system.[18] Transfers were thus used to cover such governmental expenses as public administration, education, subsidies, and public utilities. Transfers were also needed to cover deficits in the newly introduced social insurance funds.[19]

B. ANALYSIS OF COLLAPSE

The sudden collapse of the eastern economy was the primary determinant of the level of governmental transfers to the east. Avoiding or mitigating such a collapse in the Korean case could have a major impact on short-term integration costs. It is thus important to understand the reasons for the East German collapse. A variety of contributing factors can be identified, most of which point to the sudden exposure of the east to competition for which it was not prepared.

1. Currency Union

A major step in unifying the German economies was the establishment of a currency union. Beginning on July 2, 1990, the Deutschemark used in West Germany replaced the ostmark used in East Germany. This union had an important influence on the east's ability to compete, both inside and outside Germany.

The choice of exchange rates between the two currencies was an excruciatingly difficult decision. On the one hand, there was a desire to preserve the purchasing power of eastern wage earners.[20] Their preexisting ostmark wages would ideally be able to buy sufficient Deutschemarks to keep their normal purchases affordable. Estimates of the costs of comparable baskets of goods in East and West Germany suggested that an exchange rate of at least 1 Deutschemark for 1 ostmark would be necessary to preserve eastern

---

18 The west's tax and transfer system was introduced in the east at the beginning of 1991 but was poorly administered by new state and local governments. See Ghaussy and Schafer 1993, 76.

19 In addition to unemployment insurance, the east adopted the western systems for health benefits and pensions, with benefits based on lower but rapidly increasing eastern price levels. The payroll taxes to support these schemes were difficult to collect from failing enterprises. See Lipschitz and McDonald 1990, 162.

20 Chancellor Kohl had promised that, after unification, "...no one will have a worse situation than before." See *Foreign Affairs*, September 1994, 112.

purchasing power.[21] On the other hand, in order to preserve production and jobs in the east, it was important that eastern export prices be competitive. That meant that eastern employers' ostmark costs, including wages, should be translated into Deutschemark costs using the same market exchange rate that (implicitly) governed their existing exports to capitalist economies. Comparisons of export revenue (in Deutschemarks) to production costs (in ostmarks) suggested that 1 Deutschemark should be exchanged for 4 or 5 ostmarks in order to keep exports competitive.[22] However, given the above discussion on purchasing power, an exchange rate of 4 ostmarks per Deutschemark could have reduced real wages by 75 percent!

German specialists conducted a lively debate over the appropriate exchange rate, but in the end a political decision was made to lean in favor of preserving eastern purchasing power.[23] In part, this reflected a desire to avoid massive east-west migration. For most cash flows affecting individuals, the exchange rate was set at one ostmark for one Deutschemark.[24] Most other exchanges took place at a rate of 2 ostmarks per Deutschemark. Specifically, the 1:1 rate applied to:

- Price and wage contracts
- Pensions
- Scholarships, rents, leases
- A limited portion of ostmark savings, i.e., up to 2,000 ostmarks for children, 4,000 for adults aged 15 through 59, and 6,000 for those older.

---

21 See Sinn and Sinn 1994, 54, for a discussion of these comparisons. Various offices made estimates, based on both western and eastern consumption baskets and taking into account expected post-unification price changes in the east. The Joint Statistical Office, for example, estimated that an eastern basket of goods costing 100 ostmarks in 1989 would cost 97 Deutschemarks in July 1990 and 127 in October 1991.

22 The so-called foreign currency earnings coefficient for 1989 suggested that the average exporter incurred 4.3 ostmarks in costs to earn 1 Deutschemark in revenue. See Sinn and Sinn 1994, 31, 59. Also, a coefficient of 3.7 was estimated for 116 industrial combines in 1989, as reported in Ghaussy and Schafer 1993, 33, 62. While the GDR's official exchange rate was 1 ostmark for 1 Deutschemark, foreign trade with capitalist countries was conducted in valuta marks using a special fund that, in effect, established a 1989 exchange rate of 4.4 ostmarks for 1 Deutschemark. See Lipschitz and McDonald 1990, 53. The black market rate in West Berlin was around 7:1 for most of 1989, but this market served mainly travelers and pensioners rather than goods traders.

23 Chancellor Kohl, for example, promised a 1:1 ratio before the March 1990 elections in East Germany. See RINU 1993, 68.

24 See Sinn and Sinn 1994, 51.

An exchange rate of 2 ostmarks per Deutschemark applied to most other transactions, for example:

- Savings in excess of the limits cited above[25]
- Financial claims and debts[26]

A higher rate of 3:1 applied to speculative deposits established after the beginning of 1990. Considering all of these transactions, the average exchange rate was officially estimated at 1.8 ostmarks per Deutschemark.[27]

2. Foreign Trade

Adoption of a 1:1 exchange ratio for wages and most day-to-day transactions effectively constituted a 330 percent appreciation in the currency used by eastern exporters. Whereas they had previously incurred average costs of 430 ostmarks to earn 100 Deutschemarks, they would now have to spend 430 Deutschemarks in order to earn 100 Deutschemarks. Since they could neither reduce production costs (including wages) by 77 percent nor increase export prices by 330 percent, most exporters were left in an untenable position. For similar reasons, exports to eastern and central European members of the Council for Mutual Economic Assistance (COMECON), the Soviet-sponsored trading bloc, soon collapsed.

In 1989, East Germany's total foreign trade amounted to $54.6 billion, split evenly between exports and imports.[28] In 1990, exports dropped 7.4 percent while imports fell by 45 percent. In 1992, exports and imports were estimated to be, respectively, 33 percent and 25 percent of their 1989 levels.

---

25 This less favorable exchange rate for excess savings was designed to reduce the east's monetary overhang. That is, the ratio of money (M3) to comparable measures of personal disposable income was 142 percent in the east but only 89 percent in the west. It was feared that this could lead to an inflationary spending surge once Deutschemarks were obtained. Use of the 2:1 rate effectively eliminated the overhang by reducing household financial wealth by 1/3rd. See Lipschitz and McDonald 1990, 59 and Sinn and Sinn 1994, 66–77. Elimination of the overhang, however, also reduced the ability of easterners to purchase assets previously owned by the GDR government.

26 Evaluating debt at 2:1 rather than 1:1 was a great advantage for debtors and a disadvantage for the shaky banking system, which had to convert some of its deposits at 1:1. Housing loans, 20 percent of which were to private households, totaled 108 billion ostmarks ($36 billion). Enterprise loans totaled some 260 billion ostmarks ($87 billion). See Sinn and Sinn 1994, 51.

27 See Sinn and Sinn 1994, 51. Of course, the eastern economy is now based on the Deutschemark and the July 1990 exchange rate is irrelevant.

28 Trade data are discussed in Ghaussy and Schafer 1993, 114–116 and RINU 1993, 146.

A majority (65 percent) of East Germany's 1989 trade was conducted with other COMECON economies.[29] The Soviet Union accounted for 55.4 percent of East Germany's COMECON trade. Most of the COMECON trade was barter trade based on long-term contracts and annual protocols. In the second half of 1990, following economic union, the German government provided $1.7 billion to subsidize the east's COMECON exports, which helps account for the initially moderate decline in 1990 exports mentioned above.[30] By 1991, however, these subsidies were removed and exports soon collapsed. COMECON nevertheless still accounted for 54 percent of the east's exports in 1992.[31] The immediate drop in imports from COMECON countries reflected the collapse of the east's production and of its need for industrial inputs. It also indicated some substitution of western goods for often shoddy or overpriced COMECON goods.

The loss of export markets made a significant but not dominant contribution to the collapse of eastern output. In 1988, exports accounted for 23.8 percent of the east's manufacturing output, with 13.7 percent going to COMECON countries and 10.1 percent to capitalist and developing countries.[32] That is, a reduction in exports by 67 percent could directly explain a 16 percent drop in output but not the 67 percent drop that occurred.[33]

3. Competition with West Germans

Economic union suddenly exposed eastern enterprises to competition with the west. Eastern industry was unprepared for this competition and, to make matters worse, the terms of the currency conversion and subsequent wage increases left most firms hopelessly uncompetitive.

---

29 Trade between the two Germanies was between 10.5 percent and 17.5 percent of the total in 1989. See Ghaussy and Schafer 1993, 114–116.

30 See Lipschitz and McDonald 1990, 163. While overall 1990 exports dropped only 7.4 percent, exports dropped 26.2 percent to capitalist industrial countries and 8 percent to developing countries. See Ghaussy and Schafer 1993, 114–6. Real exports to COMECON countries probably held their own until 1991. See Sinn and Sinn 1994, 39–40.

31 See RINU 1993, 146.

32 See Sinn and Sinn 1994, 38.

33 The collapse of COMECON is sometimes cited as a contributor to the collapse in East Germany. However, the causation may well run in the opposite direction. That is, the collapse of East Germany's demand for COMECON imports, and its difficulty in covering the cost of its exports, helped trigger a general disruption and reorientation of trading patterns by COMECON partners. COMECON was formally disbanded on June 28, 1991. See Sinn and Sinn 1994, 38.

Significant trade took place between the two Germanies since the 1950s, accounting for between 10.5 percent and 17.5 percent of the east's total trade in 1989. However, while trade was substantial, it did not constitute competition. Under the GDR's centrally planned economic system, trade was tightly controlled.[34] It was conducted by specialized state trading companies based on requirements identified in the central plan. The GDR would sell what it could in order to buy what it needed. Individual eastern producers had no particular incentive to export, they merely produced according to the plan. Further, trade between the two Germanies was limited to items on an agreed list. There was no question of West German companies marketing their products in the east, particularly products that the east produced for itself.

However, the treaty establishing economic union on July 1, 1990, led to intense competition. With a few temporary exceptions, it provided for the free movement of labor, capital, goods, and services between the two Germanies.[35] Suddenly West German goods were available and, thanks to the currency union, affordable. The lure of high quality and novelty led to a major shift in consumption to goods from the west.[36] If their costs had been low, eastern producers might have competed by offering lower quality goods at lower prices. However, that alternative was not available. The currency union and rising wages left eastern producers with higher costs than their western counterparts. The net result was that goods from the west substantially replaced those made in the east.[37]

Prior to the currency union, nominal wages in the east were only one third of their level in the west. Eastern productivity (i.e., output per hour) was thought to equal at least one third of that of the west.[38] Based on these expectations, a currency exchange ratio of 1:1 should have left labor costs per unit of output roughly equal for the two Germanies.

---

34 The system is briefly described in Lipschitz and McDonald 1990, 60.

35 Both parts of Germany initially maintained quotas on agricultural products that were subsequently removed. See Lipschitz and McDonald 1990, 60.

36 For example, by September 1990, the western share of sales in the east was 96 percent for coffee, 94 percent for canned soups, and 90 percent for fruit-flavored cottage cheese. Other eastern favorites included new and used cars, color televisions, and foreign travel. The craze for western food (as well as consumer durables) receded somewhat as eastern producers improved quality and the pent-up demand for western goods was satisfied. See Sinn and Sinn 1994, 77–78 and *Korea and World Affairs*, Spring 1991, 31.

37 While eastern industrial output and imports from other countries both fell by 67 percent, massive transfers prevented a drop in income and the share of income consumed increased slightly. There was thus a huge increase in the consumption of goods from the west. See Sinn and Sinn 1994, 78–79.

38 Estimates of productivity ranged from one third to one half that of the west. See Sinn and Sinn 1994, 20–21 and Lipschitz and McDonald 1990, 52.

The 1:1 exchange ratio thus precluded eastern producers from using lower prices to offset perceived western quality advantages. Further, in retrospect, some observers estimate that eastern productivity was much lower than one third that of the west.[39]

To make matters worse, new eastern labor unions pushed nominal wages up rapidly. The rise began even before economic union, with average hourly wages increasing by 20 percent between the fourth quarter of 1989 and the second quarter of 1990.[40] By the fourth quarter of 1991, wages were up another 75 percent compared with the second quarter of 1990. More importantly for competition, the ratio of eastern to western wages rose rapidly. From less than 33 percent before July 1990, the ratio rose to 38.9 percent by the fourth quarter of 1990, 47 percent by April 1991, 50 percent by the beginning of 1992, and 64 percent by 1993. By one estimate, these increases pushed eastern labor costs per unit of output 44 percent above those of the west.[41] In order to compete, then, eastern producers would have to invest heavily in labor-saving production equipment.

The spectacle of escalating eastern wages in the face of a devastating depression and massive layoffs is truly remarkable. It reflects a convergence of interests among eastern workers, western workers, and western capitalists. Eastern workers took advantage of a unique opportunity to raise their wages.[42] Because of the slow pace of privatization (as discussed below), there were few capitalist employers in the east to oppose demands for higher wages. Instead, workers bargained against temporary government agencies or

---

39 The capital stock was severely deteriorated in nonpriority sectors such as infrastructure and consumer durables. See Lipschitz and McDonald 1990, 52. One 1991 study suggested productivity as low as one sixth that of the west for manufacturing industries. See Sinn and Sinn 1994, 21. By some estimates, the technology level of eastern industry was 10 years behind that of the west. See RINU 1993, 145.

40 For information on wage trends, see Ghaussy and Schafer 1993, 62; Sinn and Sinn 1994, 153, 155, 196, and RINU 1993, 145.

41 See *Foreign Affairs*, September 1994, 112. If eastern productivity had remained at the presumed 1990 level of one-third that of the west, wage increases through 1993 would have raised unit labor costs 94 percent above those of the west. However, by shedding workers, eastern companies were able to increase productivity by perhaps 50 percent between the third quarters of 1990 and 1992. See Ghaussy and Schafer 1993, 63. Allowing for some productivity increase in the west as well, the estimate of unit labor costs 44 percent higher in the east seems plausible.

42 The removal of subsidies on many consumer goods and the imposition of western-style social insurance taxes also encouraged workers to demand higher wages. See Henriksen and Lho 1994, 59.

managers with low salaries and no stakes in their enterprises.[43] Nor did rising unemployment levels temper eastern wage demands, since the central government seemed willing to provide unlimited welfare transfers. Indeed, since unemployment benefits and pensions were based on prevailing wage levels, those expecting to lose their jobs would also benefit from higher wage rates. At the same time, capitalists and workers in the west both had an interest in mitigating the threat of low-wage competition from the east. A thriving eastern industrial economy based on low wages could invade western markets, putting downward pressure on western profits and wages and encouraging western employers to move production to the east. Even some of the new state governments in the east favored high wages to promote the development of high-productivity, high-technology regional economies.[44] Eastern workers were thus allowed and encouraged to pursue wage parity with the west within five years or so, and all parties relied on the government to pay the bill through massive transfers.[45]

The east was thus opened to competition from the west. It could not compete at the western level of price and quality due to low productivity, obsolete production equipment, and inadequate infrastructure.[46] The terms of the currency conversion and subsequent wage increases precluded the possibility of competing on the basis of low price for low quality. The majority of eastern industry quickly became insolvent.

4. Other Factors

Many other factors contributed to the collapse of the eastern economy. For example, unification reduced the need for military forces and for military-related production.[47] In 1989, military expenditures by the GDR amounted to $14 billion,

---

43 In 1990, 3.6 million eastern workers discarded their previous labor organizations and joined new unions affiliated with the west's Confederation of German Trade Unions (DGB). By the beginning of 1991, the DGB represented 40 percent of eastern workers as well as 40 percent of western workers. West German employers associations participated in eastern wage negotiations beginning in the fall of 1990, but put up little resistance. The German central government did not intervene to hold wages down until 1993. See Henriksen and Lho 1994, 59–60; and Sinn and Sinn 1994, 164–168.

44 See Sinn and Sinn 1994, 143.

45 For example the metals industry agreed on March 1, 1991, to raise wages to western levels by April 1, 1994. See Sinn and Sinn 1994, 166.

46 By one estimate, 50 percent of the east's capital stock was obsolete. See Sinn and Sinn 1994, 44.

47 In a treaty with the four occupying powers, signed on September 12, 1990, Germany committed itself to reducing its combined military forces to 370,000 people, a 40 percent reduction from existing levels. See Ghaussy and Schafer 1993, 6.

supporting military forces amounting to 262 thousand people.[48] Spending represented 8.8 percent of the east's GNP. For the second half of 1990, the defense budget in the east was $2.8 billion and, for all of 1991, transfers to support defense in the east were only $2.7 billion.[49] These data suggest that, after 1989, eastern industry lost orders for specialized military goods amounting to several $ billions. Arms exports also suffered, dropping $320 million between 1989 and 1990.[50] Further, the withdrawal of 370 thousand Soviet troops and 230 thousand dependents by 1994 must have impacted local economies throughout the east.[51]

The destruction of the east's central planning system must also have contributed to the collapse of production. Supplier-customer relations were disrupted as one or the other shut down or pursued more profitable market opportunities. While planned credit was no longer allocated, market credit was not yet available to emerging companies with uncertain prospects. Managers had no market experience and uncertain motivations. The difficulties of acquiring materials and producing in a new, unfamiliar, disorganized system probably disrupted production even for companies with stable product markets. Indeed, disruptions due to the end of the central planning system could explain the initial timing of the east's economic collapse fairly well.

C. TRANSITION TO MARKET ECONOMY

Converting a centrally planned economy to a market economy is a daunting task. An entire population must learn a new set of economic skills. Markets and market-supporting institutions must be established, ownership of economic assets must be determined, and the production of goods and services must be restructured to reflect market signals. Germany plunged headlong into this process, without preparation.

1. Market Prices

A fundamental step toward a market economy is to allow the prices of goods, services, and productive resources to be determined in free markets without governmental

48 See U.S. Arms Control and Disarmament Agency 1994, 63, 105.

49 See Lipschitz and McDonald 1990, 163; and Sinn and Sinn 1994, 25.

50 Arms trade in 1989 included exports of $330 million and imports of $825 million. By 1990, exports had dropped to $10 million and imports to $80 million. See U.S. Arms Control and Disarmament Agency 1994, 105.

51 See Kihl 1994, 266.

interference. Such prices reflect economic costs and guide the efficient allocation of resources. Under central planning, in contrast, prices are determined by administrators and serve as a unit of account and a policy tool. Such prices need not reflect economic costs or even assure that markets clear, i.e., that supply equals demand. Economic union freed most eastern prices to be determined in markets, although the west also transferred its own cases of price distortions to the east.

Under the GDR, prices were distorted by a huge system of price subsidies and excise taxes. The underlying production costs were affected by subsidies and low interest rates, e.g., 5 percent for both working capital and investment loans as of the end of 1989.[52] Consumer product prices were further distorted by subsidies amounting, in 1988, to $33 billion or 18.5 percent of the GDR's net material product (NMP). These subsidies were attached primarily to food (67 percent of the total), industrial goods (24 percent), and transport services (10 percent). Rent subsidies amounted to another $11 billion. Subsidies kept prices for many basic goods and services below their western levels. For example, selected ratios of eastern to western prices in 1985 were: [53]

Potatoes	.76
Beef	.50
Rye bread	.21
Noodles	.70
Sugar	.92
Rent (2-room apartment)	.19
Electricity	.26
Railway ticket	.43
Children's day care	.05

Product subsidies were offset by excise taxes on so-called luxury products, amounting to $29 billion or 16 percent of NMP. East-west price ratios for some luxury goods were:

Coffee	4.76
Chocolate	4.33
Men's jeans	2.25
Pantyhose	5.28
Bedroom furniture	2.41
Kitchen range	2.09
Washing machine	3.16
Color television	4.71
Car	2.40

52 For a discussion of price distortions, see Lipschitz and McDonald 1990, 58, 69; and Sinn and Sinn 1994, 36, 55, 211.

53 Lipschitz and McDonald 1990, 63, provides this comparison of 1985 GDR prices (in marks) versus FRG prices (in Deutschemarks) for selected commodities.

Economic union caused major changes to eastern prices. Most prices were freed just before the union came into effect on July 1, 1990.[54] The system of price subsidies and luxury taxes was dismantled. Prices for easily transported goods such as food and consumer durables quickly adjusted to match their western levels. Other prices, especially for labor and localized services, adjusted more slowly. Housing rents were temporarily frozen but began rising sharply in 1991. Eastern ceiling prices for household electricity and gas were removed at the end of 1990, but were replaced by federal (i.e., western) price regulations.[55] Subsidies for transport services were to be phased out in 1991. On average, eastern prices (for a fixed consumer basket) rose 24 percent between July 1990 and October 1991.[56]

Rising wages, welfare transfers, and the removal of excise taxes protected most consumers from the withdrawal of subsidies and the freeing of prices.[57] Goods producers, however, were forced to match the prices of their new western competitors. This posed a particular threat to high-cost sectors, i.e., the bulk of eastern industry and agriculture. Inefficient producers accustomed to guaranteed markets, subsidized energy, and allocated credit at subsidized interest rates were forced to match western prices despite their own high and rapidly rising costs.

2. Banking System

Another basic step in establishing a market economy is to create the necessary financial institutions. In the reunification of Germany the east's monolithic system had to be restructured and opened to outside banks.

The east's banking system was at the threshold of insolvency at the time of economic union. Under the GDR system, the State Bank had effectively monopolized the

---

54 See the discussion of price reforms in Sinn and Sinn 1994, 13, 57; Ghaussy and Schafer 1993, 138; and Lipschitz and McDonald 1990, 58.

55 Price ceilings for household heating energy were to be phased out in 1991. Oil and electricity price ceilings and subsidies for commercial and industrial users were removed in 1990. See Ghaussy and Schafer 1993, 138.

56 Price increases reflected the elimination of controls rather than general inflation. Overall inflation for unified Germany was 2.7 percent in 1990, 3.5 percent in 1991, and 4 percent in 1992. See RINU 1993, 156.

57 However, easterners had to adjust to the newly adopted western tax system, including higher rates for social insurance.

financial sector.[58] Credit was allocated to enterprises in accordance with the central plan without reference to creditworthiness. Interest rates were charged for cost accounting purposes but played no role in rationing credit.

It is not surprising that, from a commercial perspective, the balance sheet of this system was weak. The fundamental problem was that the system's assets were dominated by loans to enterprises that might not even exist for much longer.[59] Further, under the currency conversion rules, bank loans (assets) were valued at 1 Deutschemark for 2 ostmarks while 35 percent of customer deposits (liabilities) could be converted at a 1:1 rate (and the balance at 1:2). The conversion rules thus caused the Deutschemark ratio of loans to deposits to be lower than the comparable ostmark ratio had been.[60]

To improve the credit system's balance sheet, the government injected $17.3 billion in assets during 1990.[61] The threat of nonperforming loans was countered by, in effect, providing a government guarantee for loans to enterprises. Substantial housing loans were less worrisome because the value of the underlying real estate collateral was high and rising rapidly, although the government would have to help with debt service until rents rose sufficiently.

The economic union opened the east to a market-based banking system with unrestricted capital flows and market interest rates. The market was open to western (and foreign) banks. The major western German banks established a major presence in commercial banking, creating new branches or using joint ventures with the old State Bank to access existing branches.[62] However, some 200 eastern savings banks and 370 credit cooperatives were integrated into their counterpart systems in the west, evidently retaining their independence. Eastern banks were permitted to borrow from the German central bank.

---

58 The banking system is briefly described in Lipschitz and McDonald 1990, 58-60.

59 As of December 31, 1989, the total credit of the GDR system was allocated 56 percent to enterprises, 23 percent to housing loans (80 percent of which were for public housing), and 11 percent to the government. At the same time, total liabilities included 37 percent in household deposits and 4 percent for currency in circulation. See Lipschitz and McDonald 1990, 65.

60 See Sinn and Sinn 1994, 69. The preference shown to household deposits would have been more than sufficient to eliminate the equity on the system's balance sheet as of December 31, 1989.

61 Initially, it was the GDR government that provided government paper to the banking system. See Lipschitz and McDonald 1990, 6–10.

62 Deutsche Bank, Dresdner Bank, and Westdeutsche Landesbank all gained access to various branches from the old State Bank system. Further, the western company Allianz acquired the GDR's entire

3. Privatization

The productive assets of the eastern economy at the time of economic union were, for the most part, owned by the government. In order to implement the western system of dominant private ownership, these assets had to be transferred to the private sector. More fundamentally, though, the problem was to perform a triage on the eastern economy, identifying production resources that could be salvaged, preparing them for sale, and discarding the rest. The great unanswered question was whether the preexisting enterprises could be made viable in a market economy.

a. Treuhand Mandate

The task of privatizing the eastern economy was assigned to a new resolution trust, the Treuhandanstalt.[63] When the Treuhand was established by the GDR on March 1, 1990, its mandate was to transform production units into independent government-owned corporations suitable for a market economy. The decision to privatize government-owned companies was not made until the second Treuhand law was passed on June 17, 1990, in preparation for economic union. The Treuhand then became the trustee for government-owned productive resources, responsible for their management, reorganization, and sale.

The Treuhand concentrated on selling productive assets. It restructured enterprises primarily to make them salable. That meant dividing large organizations into salable core units, restructuring balance sheets, debts, and environmental obligations to make the units solvent, and above all reducing the number of workers a buyer was obligated to employ. The Treuhand made use of consultants and negotiated with potential buyers to determine what restructuring was necessary to market the assets.[64]

---

unified insurance system, although other other west German insurance companies also entered the eastern market. See Ghaussy and Schafer 1993,187.

63 The mandate of the Treuhand is discussed in Sinn and Sinn 1994, 12, 96–7; and Lipschitz and McDonald 1990, 57–8.

64 The Treuhand was willing to sell only the part of a company that a buyer wanted. It was also willing to reduce the sales price in return for firm commitments by the buyer to maintain employment levels or make specified capital investments. For the most part, the Treuhand sold its assets for cash to individual buyers. It was not interested in providing credit, floating shares, or lining up multiple buyers. See Sinn and Sinn 1994, 97, 107, 113.

The Treuhand could not sell its assets as companies because, for the most part, they were not companies in the western sense.[65] Instead, they were centrally managed production units. Thanks to decades of central planning, they did not have experienced managers with skills for controlling costs, penetrating markets, or applying state-of-the-art technology. Thanks to the economic union, they could not even offer captive markets to potential buyers.[66] The Treuhand, rather than investing time and money to develop successful companies, chose to sell its assets to managers and companies that were already successful, namely western capitalists.[67] They already possessed the technologies, access to capital, and management expertise necessary to complete the restructuring process. This strategy accelerated the demise of eastern industry but greatly reduced immediate privatization costs for the German government.

The industrial property to be privatized consisted of perhaps 40,000 individual factories, originally organized into a fairly small number of companies.[68] These industrial combines had to be broken into somewhat smaller units before sale, in part to promote a competitive market structure. The number of companies that would eventually be disposed of increased as larger units were broken down, rising from 8,000 in July 1990 to 10,300 in March 1991 and 12,000 by May 1993.[69] Progress was initially slow, with only 30 firms privatized by early October 1990. The percentage sold increased to 30 percent by the end

---

65 The Treuhand strategy is discussed by Benedikt Thanner in RINU 1993, 167–186.

66 The Treuhand nevertheless enticed buyers with public procurement preferences and promises not to create additional eastern competitors. See RINU 1993, 172.

67 Arguably, as a new public bureacracy, the Treuhand was ill-equipped to develop market-oriented companies, particularly on the massive scale required. Other countries with fewer assets to privatize have followed the opposite tack, first restructuring and investing in government-owned companies in order to prepare them for later privatization. This contrasting approach was followed by Mrs. Thatcher in the UK as well as by Chile following the ouster of Allende. However, the Thatcher privatizations amounted to only a few dozen and restructuring often took 4 or 5 years. In the case of Chile, perhaps 500 nationalized firms were involved. Moreover, the British and Chilean firms presumably began the restructuring process as market-oriented companies with considerable management experience. See Sinn and Sinn 1994, 99–100.

68 See the discussion of privatization in Sinn and Sinn 1994, 96–7, Lipschitz and McDonald 1990, 163, and RINU 1993, 38, 145.

69 Of the 8000 firms identified in July 1990, some 1900 public utilities were slated to be transfered to municipal ownership. See Sinn and Sinn 1994, 96.

of 1991 and to 60 percent (of 12,000 firms) by May 1993.[70] In employment terms, by the spring of 1992, the Treuhand had reduced jobs at its companies from an original 4 million down to 1.3 million.[71] This was achieved by privatizing 1 million jobs and eliminating 1.5 million through bankruptcy and dismissal.

In addition to industrial firms, the Treuhand had to dispose of businesses in the service industry and considerable land. Most of the 45,000 hotels, restaurants, and shops were privatized by March 1992, although in many cases the premises were leased rather than sold.[72] The Treuhand was responsible for some 4 million hectares (1 hectare = 2.47 acres) of land constituting 40 percent of the east's total land area. This included 27 percent of the agricultural land and more than half of the total urban land that could eventually be privately owned.

b. Treuhand Costs

Originally, the Treuhand was expected to be self-financing. It would use the revenue from the operation and sale of its assets to restructure them as necessary.[73] However, the costs of supporting and restructuring firms proved to be much larger, and the income from selling them much smaller, than had been hoped. The Treuhand wrapped up its operations at the end of 1994 with a total debt of $173 billion.[74]

The Treuhand paid substantial subsidies to keep its companies afloat until they could be sold or shut down.[75] Production units could not be disposed of immediately, in part, because first their conditions and prospects had to be assessed. In the meantime, companies facing a liquidity crunch could not obtain commercial credit since their creditworthiness was unknown. Accordingly, the Treuhand guaranteed working capital loans amounting to $20 billion through March 1991.[76] The Treuhand supported its

70 Some 5700 firms were sold to new investors, 1270 were returned to previous private owners, and 300 were transfered to local authorities. See RINU 1993, 144–5.

71 See Sinn and Sinn 1994, 83.

72 The eastern states rather than the Treuhand were responsible for returning some 12,000 small companies that the GDR had expropriated in 1972, long after the bulk of the economy had been seized. Many of these were evidently returned relatively quickly. See Sinn and Sinn 1994, 82, 98.

73 Any surplus was to be used to strengthen government finances and compensate easterners for losses resulting from the use of a 2:1 exchange rate to convert part of their savings.

74 See *New York Times*, January 24, 1995, A3.

75 The restructuring process is discussed in RINU 1993, 151; and Sinn and Sinn 1994, 144, 168.

76 Initially, the Treuhand had to approve guarantee requests without much scrutiny. See Lipschitz and McDonald 1990, 163.

companies at least until they filed the opening balance sheets needed to assess their conditions and prepare them for sale. While the original deadline for filing was October 30, 1990, by May 1991 only 60 percent of the firms had filed statements and only 6 percent had been examined and approved.[77] The deadline was extended to January 31, 1992, for large firms. During 1993, an estimated $10 billion was required to support the remaining Treuhand firms.[78]

The Treuhand assumed the interest obligations for its companies' bank loans until it approved their balance sheets.[79] This was a substantial obligation since, as of the end of 1989, eastern enterprises owed some $87 billion to the State Bank. Further, since the debt on a company's books had been determined somewhat arbitrarily under central planning, the Treuhand redistributed the debt where necessary to improve the balance sheets. Viable companies with excessive debt were given interest-paying claims on the Treuhand to build up their assets; companies whose equity exceeded the value of their real estate were assigned interest-bearing liabilities.[80] Preparation for sale also included sorting out obligations for environmental cleanup, with the Treuhand typically paying the greatest share.[81] The Treuhand also provided reconstruction loans.

c. Treuhand Revenue

In 1990, the Treuhand hoped that it could generate revenues of $400 billion by selling its assets.[82] As it turned out, that was overly optimistic. Sales before October 1991 generated only $10 billion. At that rate, the eventual total would not exceed $40 billion.

Part of the problem was that restructuring companies to survive in a market environment was a much bigger task than anticipated. Originally, it was expected that 30 percent of eastern industry was ready for market competition and 40 percent could be

---

77 By May 1991, the Treuhand had shut down only 300 firms. However, the pace of examinations and bankruptcies increased during the second half of 1991. See Sinn and Sinn 1994, 98.

78 As noted above, 5000 firms were unsold as of May 1993. On average, their losses were estimated at 30 percent of their sales. While the Treuhand was scheduled to wrap up operations by the end of 1994, some 120 firms were expected to continue to be partly owned by the Treuhand (or its successor) for another 4 years. See RINU 1993, 100, 145.

79 See Sinn and Sinn 1994, 99, 104.

80 This process gave companies an incentive to falsify their opening balance sheets. See Sinn and Sinn 1994, 104. The fund for settling old debts reached $93 billion by May 1993. See RINU 1993, 19.

81 See Sinn and Sinn 1994, 103.

82 See Sinn and Sinn 1994, 84–85.

restructured.[83] The reality was lower on both counts due especially to the prevalence of obsolete production methods and equipment that could not produce products at competitive cost and quality. These problems were exacerbated by the rising eastern wages discussed above. The new owners of companies privatized through the end of 1991 were expected to make restructuring investments amounting to some $67 billion.[84] The prices of Treuhand assets were also reduced because the asset markets were flooded by the attempt to sell all of the Treuhand properties within only a few years and by the Treuhand's pursuit of social objectives, for example, reducing sales prices in exchange for employment and investment commitments by investors.

Another factor delaying sales and reducing proceeds was the attempt to restore certain properties expropriated by previous eastern governments to their original owners.[85] These included mainly properties taken from West Germans and refugees who had fled the east during the 1933–45 and 1949–1990 periods. Almost 300,000 real estate properties were involved as well as perhaps 5,000 firms and industrial properties.[86] However, no restitution was provided for the 70 percent of capacity that was seized by the Soviets during their 1945–49 occupation.[87] The partial attempt at natural restitution hindered the privatization process because over 17,000 claims were filed affecting almost all of the Treuhand firms.[88] The claims were difficult to resolve due to poor records and repeated industrial reorganizations following expropriation. Firms with unresolved claims could not be sold, at least not without a reduction in price.[89]

---

83 See Lipschitz and McDonald 1990, 8.

84 The market value of eastern companies was also reduced by the tight monetary policy maintained by Germany's central bank, leading to higher interest rates and hence a lower market value for the potential future income represented by the Treuhand's assets. See Sinn and Sinn 1994, 83, 110.

85 The so-called natural restitution approach was favored particularly by foreign minister Hans-Dietrich Genscher. See Sinn and Sinn 1994, 14. The alternative of financial compensation was offered in special cases, e.g., where property had already been sold in good faith or when there was some public urgency. Some opposed a general option of financial indemnity as too expensive. The federal Ministry of Justice estimated in 1991 that the financial approach would cost $187. See Sinn and Sinn 1994, 84. For a general discussion on restitution, see Sinn and Sinn 1994, 87–96.

86 These are in addition to the 12 thousand small industrial firms seized in 1972 and returned to their owners after unification.

87 At Soviet and GDR insistence, these properties were excluded. The Soviets had seized all large (and many medium-size) firms, banks, insurance companies, mines, and Nazi-owned properties. See Sinn and Sinn 1994, 82, 85, 89.

88 As of 1993, 4,000 of these had been resolved. See RINU 1993, 99.

89 With claims unresolved, new owners had difficulty getting credit and were hesitant to make further investments in their new properties.

As it turned out, the Treuhand's most valuable assets were its land holdings. Land was relatively scarce in the west, with 247 people per square kilometer in 1988 versus only 155 in the east.[90] At western price levels, the Treuhand's land holdings in 1991 were worth some $210 billion. However, the Treuhand did not sell land at those prices because eastern prices were lower, its holdings were immense relative to the market, and it was focused on selling enterprises in order to support employment.[91] In some cases, western investors bought Treuhand enterprises at very low prices, shut down the factories, and retained the associated land.[92]

4. Industrial Restructuring

Eastern industry must be restructured in order to support and eventually improve the eastern standard of living. The process will be long and costly, especially because relatively little of the old industrial sector can be saved.

As discussed above, a de facto high-wage development policy was adopted for the east. Most of the preexisting industrial base was thereby rendered worthless and shut down. By 1993, only 18 percent of the old industrial base remained.[93] Moreover, it was owned primarily by west Germans.[94] This approach assured that western capitalists would dominate eastern markets and western workers would retain their high wage levels. However, it also meant that the eastern economy would not be self-supporting for years to come. Many easterners would instead rely on welfare transfers from western taxpayers. Further, because of the continued reliance on western capital, easterners would have relatively little influence on their own development.

---

90 See Lipschitz and McDonald 1990, xv.

91 Eastern real estate prices nevertheless escalated rapidly following economic union. See Sinn and Sinn 1994, 71, 105.

92 West Germans have also been accused of buying eastern firms in order to shut down potential eastern competitors. See RINU 1993, 90, 153; and Sinn and Sinn 1994, 107.

93 See RINU 1993, 83.

94 As of spring 1991, easterners had purchased only 5 percent of the industrial properties sold by the Treuhand. Because the GDR had not permitted capitalists and, to some extent, due to the 2:1 conversion rate applied to much of eastern savings at the time of economic union, easterners did not have the capital to participate in the Treuhand market. See Sinn and Sinn 1994, 86.

Restructuring eastern industry will require substantial new investment to modernize surviving plants and start new ones. To encourage such investment, the government offered large financial incentives.[95] Investors were given a tax-exempt premium amounting to 12 percent (reduced to 8 percent after July 1, 1991) of their plant and equipment expenditures. Additional premiums from Germany's regional assistance program ranged from 15 to 23 percent.[96] Accelerated depreciation permitted 50 percent of investment value to be written off the first year, 30 percent the second, and 20 percent the third. A variety of low-interest loans were also available. Altogether, financial incentives may have reduced investment costs in the east by half.

The level of private investment, however, has been disappointing for a number of reasons. The desirability of producing in the east is limited by poor transportation, communications, and public administration. Any eastern wage advantage is rapidly eroding and in any case is overshadowed by much lower wage levels in Poland, the Czech Republic, and Hungary.[97] Moreover, tight monetary policy led to high interest rates and an overall German recession.

5. Infrastructure

Eastern infrastructure, including especially transportation, communications, energy, environmental quality, housing, and public administration, was in very poor condition at the time of economic union. To a large degree, the GDR had relied on its initial infrastructure endowment and invested relatively little during its 40-year tenure.[98] In order to provide public services and support economic development, substantial public investment is now required.

Planned federal programs for infrastructure investment include a total of $37.3 billion for transportation, with $4.7 spent in 1991.[99] Some $36.7 billion will be required through 1997 to build a modern communications system, with $4.6 billion being spent in

---

95 Investment incentives are discussed in Sinn and Sinn 1994, 174; Ghaussy and Schafer 1993, 111, Lipschitz and McDonald 1990, 60; and RINU 1993, 132.

96 The regional premiums were budgeted at $2 billion per year. A $4 billion fund was also made available for regional development by the European Community. See RINU 1993, 132–133.

97 Wages in the Czech Republic were only 10 percent of those in western Germany. For a number of reasons, Volkswagen planned to invest $5 billion in the Czech Republic but only $2.7 billion in eastern Germany. See Sinn and Sinn 1994, 28.

98 See Ghaussy and Schafer 1993, 73, 111.

99 See RINU 1993, 135.

1991. During 1990–93, credit programs were established to support $10 billion in local infrastructure investment and $6.7 billion in housing. Another $450 million was planned for environmental programs during 1990–94.

Substantial progress in establishing east-west digital communications links was accomplished by 1992. The major construction required to upgrade transportation links would take considerably longer. By one estimate, $87 billion would be required, including $39 billion for roads and $40 billion for railways.[100] Again, a major emphasis was placed on establishing east-west links to ease the congestion that followed economic union as traffic patterns shifted from intra-east to east-west. Since public transportation in the east was previously dominated by railroads, considerable investment will be needed to accommodate the likely shift toward highway and air transportation.[101]

The federal government, which already owned the western railway system, took over the eastern system as well. While the eastern system did not have the quality of equipment and personnel needed to compete with the west, both systems were losing money.[102] Eastern road transport, on the other hand, was being privatized. The Treuhand broke up the large conglomerates and created some 390 transport companies for privatization.

Required investment in environmental quality included sewage treatment plants, hazardous waste sites, soil-treatment centers, and centers for the disposal of chemical warfare agents.[103] An estimated $11.3 billion was required for 1991 alone.

The energy sector was both inefficient and a major source of pollutants. An estimated $67 billion was required to renovate the electricity, gas, and district heating sectors.[104] The pollution problems stemmed from relying on lignite, a dirty brown coal, for 70 percent of primary energy and 85 percent of electricity production.[105] The east's nuclear power plants were shut down after union because they did not meet the western

---

100 See Sinn and Sinn 1994, 182–183.

101 Forecasts are discussed in Ghaussy and Schafer 1993, 157, 161. Also, because eastern plants had a high degree of vertical integration, less factory-to-factory transportation was needed previously.

102 See Ghaussy and Schafer 1993, 168–169.

103 See Ghaussy and Schafer 1993, 219–222.

104 See Ghaussy and Schafer 1993, 136–145.

105 See Kihl 1994, 267.

safety standards. The lignite-based power plants were technologically obsolete and much less efficient than those of the west. To avert dependence on public investment, the eastern power system was privatized to the major western producers. The anticompetitive western regulatory system was also adopted.

An efficient public administration provides a "soft" infrastructure. Companies rely on the public administration to provide public services, regulatory and legal decisions, and development support. However, the eastern administration had to be recreated because the GDR government was eliminated and new state governments were established.[106] While the east did not lack government employees, too few of them were engaged in true public administration, and they were not familiar with the newly adopted western laws.[107] This created a number of problems. Land record and survey offices were not available to help sort out conflicting property claims. The lack of an effective civil service prevented the new states from utilizing a large proportion of the available 1990 federal grants. State revenues failed to meet expectations, in part, due to inexperienced tax collectors.[108]

6. Services

The service sector is typically underdeveloped under communist systems. This results from an overemphasis on industrialization and a philosophical belief that many services are unproductive. Some business and financial services are simply not needed in a centrally planned economy. Enterprises perform other services for themselves. All of this raises the possibility that the service sector might expand after the transition to a market economy, thereby absorbing some of the unemployed industrial workers. In eastern Germany, however, some service industries expanded but others contracted, causing a net loss of service jobs.

---

106 The western governmental structure was much more decentralized than that of the GDR. State and municipal governments, respectively, employed six and four times more workers than the federal government. The GDR did not even have state governments. See Sinn and Sinn 1994, 181–182.

107 Some 200,000 government employees were engaged in public administration, compared to an estimated need for 840,000. Overall, government employment was scheduled to decline, particularly among the 700,000 in the so-called X-branch, which included the Communist Party, the Stasi, the police, and the National People's Army. See Ghaussy and Schafer 1993, 75, 182.

108 See Ghaussy and Schafer 1993, 74, 77.

In 1987, the service sector accounted for 57 percent of employment in the west but only 43 percent in the east.[109] To raise the eastern share to the western level would have required 1 million eastern workers to shift from other sectors to services. However, as Table III-2 indicates, 1989 service employment per 1000 inhabitants was already at rough east-west parity, namely 241 in the west and 246 in the east.[110] Instead of an increase in service employment, Table III-2 suggests that transition to a market economy might result in employment shifts within the service sector. For example, restaurants, banking, and insurance employ fewer people per inhabitant in the east and might be expected to expand. On the other hand, transport and education employ more people per inhabitant in the east and might be expected to contract.

Table III-2. 1989 Service Employees per 1,000 Inhabitants

	East Germany	West Germany
Restaurants etc.	7	18
Banking	4	11
Insurance	na	5
Trade	53	55
Telecommunications	8	9
Other	18	19
Health	25	25
Government	55	55
Transport	31	17
Education, science, culture	45	27
Total	246	241

Source: Ghaussy and Schafer 1993, 181.

Initial changes in service sector employment confirm, in part, the above analysis. Table III-3, for example, indicates that, by the second quarter of 1991, service employment had fallen by 14 percent. Small gains in insurance and banking were more than offset by large reductions for government, transport, and trade.[111] This suggests that the new

109 See Ghaussy and Schafer 1993, 177–89.

110 The apparent anomaly of a low eastern service share but equal employment/population ratios was possible because labor participation rates were higher in the east, e.g., 1989 civilian participation rates were 54 percent in the east and 48 percent in the west. See Sinn and Sinn 1994, 208.

111 Employment evidently also expanded in the skilled service trades (e.g., electricians, auto mechanics) and the professions (e.g., doctors, lawyers.) See Ghaussy and Schafer 1993, 184–186.

system could not support the degree of overstaffing prevalent under the GDR. Privatized road transport firms, for example, replaced huge, monopolistic government combines and were forced to compete.[112] Retail trade, previously dominated by two government monopolies, was similarly transformed into a competitive, privatized sector.

Table III-3. Eastern Service Employment (2nd quarter 1991 vs 1989) (000)

	1989	1991	% Change
Insurance	12	22	83
Banking	38	55	45
Other	1,130	1,073	-5
Government	1,715	1,567	-9
Transport	676	530	-22
Trade	836	550	-34
Total	4,407	3,797	-14

Source: Ghaussy and Schafer 1993, 184.

The markets for many services are more localized than those for industrial products. This could give eastern entrepreneurs an opportunity to survive despite the general competitive pressures from the west. Western investors nevertheless have achieved a substantial position in retail trade and dominance in banking and insurance.[113] Further, many eastern trucking firms have signed subcontracting agreements with western firms.[114]

As eastern incomes grow, the share of services in eastern spending should increase, if the pattern established by other capitalist countries holds true. However, the demand for business services is often tied to the locations of company headquarters.[115] To the extent that the owners of eastern companies are located in the west, the development of business services in the east may lag.

112 The drastic decline in industrial output also contributed to the decline in transport employment. See Ghaussy and Schafer 1993, 185.

113 For example, an American investor bought Berlin Cosmetics, a maker of lipsticks, shampoos, and other consumer products, from the Treuhand and invested in new production equipment. Although the company's products had been well regarded, the new owner found that eastern retail outlets had been acquired by western chains and were reluctant to carry eastern products. See the *New York Times*, July 27, 1995, D1.

114 See Ghaussy and Schafer 1993, 186–7.

115 Companies may centralize functions such as marketing, advertising, financing, accounting, and research and development. Other companies providing related services probably have an advantage if they are located near their customers' headquarters. See Ghaussy and Schafer 1993, 188.

7. Agriculture

Conditions in the eastern agricultural sector paralleled those described above for industry. The sector had to be returned from government to private control and restructured to enable it to compete with west German and European Community farms.

In 1989, agriculture accounted for 11 percent of employment and 10 percent of GDP in the east. Comparable shares for the west were 3 percent and 2 percent.[116] Land reform in 1945 established some 789 thousand small farms averaging less than 11 hectares apiece. However, during the 1960s, these farms were forcibly collectivized, leading to 1,243 large collective farms averaging 4,742 hectares each in 1989. Importantly, while collectivization was involuntary and farmers became de facto employees, they retained legal title to their land. In addition to the collective farms, perhaps 219 state farms accounted for about 15 percent of the farms and 27 percent of the land.[117]

After economic union, collective farmers were offered several reorganization options:

- Collective farms could be broken up into private farms and organized as producer cooperatives as legally defined in the former West Germany.
- Collective farms could be transformed into privately owned corporations.
- New individual farms could be established on land withdrawn or leased from the collectives.

By August 1991, some 10,000 new farms (i.e., the third option) had been established, accounting for 15 percent of the total agricultural land.[118] The majority of collective farmers were evidently reluctant to embrace the risks of independent farming.[119]

---

116 These shares include part-time farmers in the west and farm employees doing non-farm work in the east. Eastern agriculture is discussed by Gunther Schmitt in Ghaussy and Schafer 1993, 190–205.

117 The state farms were based on land expropriated in 1945 but not distributed to small farmers under the land reform program. See Sinn and Sinn 1994, 90; and Ghaussy and Schafer 1993, 191.

118 New farms were established by former collective members as well as by farmers from western Germany and the Netherlands. See Ghaussy and Schafer 1993, 194.

119 In Ghaussy and Schafer 1993, 199, Gunther Schmitt nevertheless argues that family farms are more efficient and will ultimately drive cooperatives from the market. Family farms are said to be superior at motivating and controlling workers and at flexibly adjusting production. In contrast, the democratic nature of co-operative management compromises its ability to make tough decisions. Schmitt cites a US sample wherein only 91 out of 262 cooperatives survived for at least 10 years.

As of late 1991, some 30 percent of the collectives were expected to be liquidated, with the remainder being reorganized as cooperatives or corporations.[120] The Treuhand was responsible for privatizing only the state farms, which held 27 percent of agricultural land.[121]

The economic union placed eastern farms in a threatening competitive environment for which they were not prepared. At the time of economic union, eastern farms were severely overstaffed, with labor productivity only half that of the farms in western Germany, which were themselves considered inefficient. The GDR had placed a high priority on achieving self-sufficiency in food, and had largely succeeded.[122] To achieve this in the face of low natural yields, however, eastern farms were among the most intensive users in the world of fertilizer, herbicides, and sewage sludge.[123] Output prices were high, input prices were subsidized, wages were low, and rent payments were unnecessary. Eastern farms nevertheless were in deficit for the 1986–89 period.

At the time of economic union, prices paid to eastern farmers were double those paid in the west. They quickly adjusted to the western level, however, as import barriers were removed. The drop in prices placed eastern farms in an untenable position, forcing massive layoffs. As indicated on Table III-1, above, agricultural employment dropped by 556,000 by the end of 1991. In percentage terms, this 58.2 percent drop was even greater than the 47.1 percent drop in mining and manufacturing. In addition to welfare transfers to support the unemployed, the federal government provided some $2 billion in aid to keep farms liquid and $1.8 billion for market interventions and export subsidies (to Eastern Europe).[124] Aid was also provided for individuals starting new farms.

---

120 See Ghaussy and Schafer 1993, 202.

121 In 1992, a program was being developed to return some 500,000 hectares (out of 1.7 million held by the Treuhand) to previous owners, at low prices and subsidized interest rates. See Sinn and Sinn 1994, 90, 97.

122 Before World War II, the east had been considered Germany's granary. See Ghaussy and Schafer 1993, 200.

123 Compared with the west, eastern farmers use 10 percent more mineral fertilizer, 2.5 times as much lime fertilizer, and 2 times the level of herbicides. Agrochemicals were used to compensate for low natural yields and scarce water. The soil is in poor condition with compaction, erosion, and contamination from heavy metals contained in the sludge. See Ghaussy and Schafer 1993, 213–215.

124 See Ghaussy and Schafer 1993, 111, 202. Additional help is needed to improve supporting infrastructure, including roads, credit, expert advice, and input suppliers. On the other hand, the unity treaty required the gradual reduction of agricultural subsidies.

For the future, the survival prospects of large cooperatives and corporate farms are doubtful. Market forces may force most of them to break up into family-sized farms. The structure that emerges could prove more efficient than that of the west, which is hobbled by small farm sizes. Excluding part-time farmers, the average size of western farms is 30 hectares.[125] In contrast, the average size of the efficient farms of the US, Canada, and Australia is 150 hectares. The average size of full-time farms being established in the east is estimated at 80 hectares, which may permit a less costly scale of production than that of the west. In addition, the east will be supported and protected from global competition by the European Community's Common Agricultural Policy.

D. LESSONS FOR KOREA

As described above, Germany has already experienced the trauma of integrating its eastern and western economies. While it has barely begun the task of developing a self-supporting eastern economy, its existing experience is invaluable to Korean planners looking ahead to their own unification. Some of the key lessons from the German case are summarized below:

- The eastern economy collapsed because it was not prepared for competition with the west. Even without that competition, the transformation from central planning to a market economy would have caused a severe depression by disrupting supplier relationships and exposing insolvent producers.
- Germany adopted currency, wage, and welfare policies that eliminated the east's ability to compete on the basis of low-quality goods for low prices. The initial 1:1 currency conversion rate, the subsequent acceptance of union-led wage demands, and the generous provision of welfare for the unemployed all raised the costs of eastern producers to uncompetitive levels. German policy thus exacerbated the severity of the economic collapse.
- Emigration from the east dropped substantially once unification appeared certain. Thereafter it remained at substantial but orderly levels, partially because of the generous welfare transfers to the east.
- Employment was reduced throughout the overstaffed economy, in heavy industry, agriculture, and such service industries as retail distribution and transportation.

---

125 See Ghaussy and Schafer 1993, 203.

- Privatization of the eastern economy by selling assets for cash resulted in it being dominated by western capitalists. It remains to be seen how successful this will be at promoting eastern development.
- Building a new eastern economy will inevitably take time. Market institutions, hard infrastructure, and public services must be developed before the east can attract the substantial private investment that will be necessary. The jobs necessary to absorb redundant workers will not appear overnight.

IV. SCENARIO 1: SIMULTANEOUS ECONOMIC INTEGRATION AND POLITICAL UNION

The first scenario, simultaneous economic integration and political union, can be viewed as a base case upon which the remaining scenarios seek to improve. It resembles the unification approach taken by Germany in 1990 and is often called sudden unification or unification by absorption. The North Korean economy, described in Chapter II, is likely to collapse when exposed to the aggressive southern competition assumed for scenario 1. That collapse, however, can be moderated if the ROK government can improve upon the policies that exacerbated the East German collapse, described in Chapter III.

A. INTRODUCTION

The essence of scenario 1 is that the ROK government gains political control of North Korea and quickly establishes a unified state with an integrated economy. Such a possibility must be taken seriously in light of the sudden unification of Germany and the later collapse of the Soviet Union, neither of which was widely expected. For example, an increasingly desperate economic situation in North Korea might lead to civil unrest, a change of government, and a voluntary absorption of the north by the ROK.[1] Alternatively, the current DPRK regime, or its replacement, might begin to open and reform the northern economy, enabling the people to discover how much better off conditions were in South Korea and stimulating demands for reunification. Other, more ominous possibilities could involve fractional fighting in the north, military intervention by the ROK, or even full-scale north-south war.[2] Careful observers consider all of these

1 The possibility that economic implosion will lead to grassroots protests or an elite coup followed by popular demands for unification are discussed in Henriksen and Lho 1994, 32. The possibility that the south has been "bleeding" the northern economy through a qualitative arms race and a refusal to discuss mutual force reductions is noted in Kihl 1994, 52.

2 The possibilities of a Romanian-style civil war in the north and/or southern military intervention to contain a northern collapse are discussed in Jordan 1993, 12, 52.

scenarios to be unlikely, especially in light of the totalitarian control and strong will to survive of the current DPRK regime.[3] In the present paper, it is assumed that unification occurs peacefully, or at least that the South Korean economy is not damaged by any violence that does occur.[4]

Scenario 1 assumes that the ROK government would achieve complete sovereignty over the north, quickly establishing military and political control.[5,6] It would then integrate the two economies. Customs barriers would be removed, allowing goods and services to flow between north and south. Immigration barriers would also be removed, permitting a free flow of people. Korean investors would be permitted to establish businesses throughout the country. Markets and related institutions would be established in the north and its farms and enterprises would be privatized. The ROK government would also extend to the north the pervasive regulatory approach it practices in the south, using its industrial policy tools to control and guide the north's development.[7]

A decision to integrate the two economies quickly might follow from several motivations. First, this shock therapy approach could speed the north's long-term development as economic agents quickly begin responding to market-driven prices that reflected economic costs. Secondly, quick integration would help to make the political union irreversible. Finally, southern capitalists would undoubtedly pressure the government for quick access to northern labor, resources, and markets.

---

3 See, for example, the assessment of scenarios by Young C. Kim in Kihl 1994, 253.

4 Violence that damaged the southern economy would impair its ability to pay the costs of reunification. Violence confined to the north would increase unification costs, especially for emergency relief and the repair of damaged infrastructure. Moreover, violence would invite the intervention of outside powers, diplomatically and perhaps militarily. In either case, the ROK's freedom of action would be curtailed. After the violence, however, unification would nevertheless follow one of the scenarios discussed in this paper.

5 To mitigate any opposition from its neighbors, especially China, the ROK might commit itself to a more neutral foreign policy and a drawdown of U.S. forces. Germany, for example, gained Soviet and allied consent to its own reunification by committing itself to draw down its combined forces to 370,000 by providing monetary support for the withdrawal of Soviet troops, and by renouncing claims to territories lost after World War II. See Ghaussy and Schafer 1993, 2–9.

6 The ROK would establish public administrations within the north and appoint local government officials. The southern electoral system would be extended to the north as soon as practicable.

7 The ROK uses credit and tax incentives as well as regulatory restrictions to guide economic development. Recently, it blocked a Hyundai proposal to enter the monopolized steel industry and accepted Samsung's plan to join the crowded automotive industry. On another matter, Lee Kun Hee, chairman of Samsung, observed: "To obtain approval for a semiconductor plant, you need 1,000 chops." See *Far Eastern Economic Review*, June 22, 1995, 45.

In any case, economic integration will require a number of costly activities:

- The ROK government must immediately provide emergency relief to sustain life and provide vital services in the north.
- The government will also lead the near-term restoration of production in the north under a capitalist market system.
- In the long term, the government and private investors will develop the northern economy, raising its standard of living eventually to the southern level.

B. ECONOMIC COLLAPSE

The northern economy would collapse into a severe depression if scenario 1 occurred. The experience of East Germany, whose economy parallels that of North Korea in so many ways, provides a vivid illustration of what the north should expect. However, the situations are not identical. More importantly, Korea's response need not be identical. Even within scenario 1, the ROK can choose policies to mitigate the collapse and limit the need for emergency welfare payments.

1. Initial Conditions

The northern economy is likely to be in poor shape even before economic union. As discussed in Chapter II, gross national product (GNP) fell by an average of 3.9% per year from 1989 to 1993. To an important degree, this decline was due to the trade shocks the DPRK experienced as the Soviet trading system disintegrated. The demise of subsidized friendship prices, credits, and barter arrangements with other communist countries left the DPRK unable to sustain its imports of oil, machinery, and spare parts. Even China, the north's principal remaining source of oil and food imports, threatened to tighten its payment terms. The shortage of energy and spare parts reportedly left northern industry operating at only half of its capacity. Northern agriculture suffered for related reasons, and perhaps due to poor weather, with grain production falling by 29 percent from 1989 to 1992. Food imports were not sufficient to fill the gap between production and requirements. By 1995, the north was accepting rice imports (on very generous terms) from Japan and even the ROK.

The DPRK economy was already performing poorly before the 1990s trade shock. For example, in the decade prior to 1989, northern GNP grew by an average of 4.47 percent per year. For 1984–89, the north grew by only 2.82 percent per year.[8] This is

---

[8] Based on GNP estimates (in northern won) in Hwang 1993, 120.

hardly satisfactory for a poor country with a growing population. In contrast, GNP in the south grew by 8.2 percent and 10.4 percent in the comparable periods.[9] The north is evidently held back by limitations inherent in its economic system.

- Central planning and socialist controls stifle individual and enterprise incentives for efficient performance and improved productivity.
- The national goal of self-sufficiency isolates the DPRK economy, denying it benefits of specialization and scale economies, forcing it to overexploit its limited agricultural resources, and leaving it without the foreign exchange and know-how needed to acquire and utilize modern technologies.
- Aggressive militarization forces the DPRK to withhold over a million prime-age people from the civilian work force, overinvest in heavy industries to support military production, and neglect consumer and light industries better suited to the DPRK's capabilities and resources.

In short, without major reforms the northern economy seems unlikely to perform well even after it has adjusted to the 1990s trade shock.

If unification is preceded by a period of civil unrest and domestic violence, the economy may suffer even further damage. Production losses due to strikes, refugee movements, or physical destruction would ripple through the centrally planned system, disrupting planned production at other locations. Emergency reallocations and transportation breakdowns could have similar disruptive effects.

The north is thus likely to need an emergency aid program as economic union begins. There may be pockets of actual starvation and primitive living conditions that need immediate attention. Explicit unemployment is likely to be minimal since, under the DPRK system, enterprises typically retain their workers even when production is cut. However, the normal flow of food and clothing rations may have already been reduced. The living situation is likely to be precarious for most northerners, leaving them little room to absorb the coming shocks of integration.

---

9 Based on GNP in constant 1985 southern won as reported in Asian Develpment Bank 1992, 184.

2. Unification Shocks

Economic union under scenario 1 would subject the north to most of the shocks faced by East Germany:

- Organizing production units as individual companies, and eventually privatizing them, would expose the insolvency of many.
- Freeing prices and ending subsidies would make many more firms insolvent.
- The transition from central planning to a market system would disrupt supplier-producer relations, exacerbating input shortages.[10]
- Opening the border to trade and investment would subject an unprepared north to aggressive competition from southern capitalists.

If anything, North Korea seems even less prepared for these shocks than East Germany. Its economy appears just as distorted and considerably more isolated. Perhaps one indicator of relative productivity is that East Germany was a major exporter of machinery and transport equipment within COMECON while North Korea exported more basic manufactured goods such as steel and textiles.[11]

The north's situation, however, will differ from that of East Germany in certain ways. For example, North Korea has already undergone a severe trade shock, with the loss of preferential treatment from the Soviet bloc. The north will have had time to adjust before integration begins, although it is not clear what it has done so far. A lesser trade shock may still be in store if, as discussed below, China halts its preferential treatment when Korea unites. Another key difference, also discussed below, is that North Korea is much more militarized than East Germany was. Demobilization will thus have a larger impact in the Korean case.

---

10 Under the communist system, producers communicate primarily with ministries and planners rather than with customers and suppliers. Further, export producers and import consumers do not deal directly with trading organizations. Economic activity will thus be disrupted until voluntary market relationships can be established. See Hwang 1993, 260–262.

11 In the 1987–93 economic plan, for example, the DPRK counted on East Germany to provide significant technical assistance as it sought to revitalize the economy through automation, computers, and robots. See *Asian Survey*, September 1993, 865. East Germany was generally considered a communist showcase while the DPRK ranked nearer the bottom of the second world. See *Economist*, July 16, 1994, 20.

3. China Trade Shock

After unification, China will probably eliminate the preferential trade treatment it has provided for the DPRK. This will complete the trade shocks that began with the demise of communism in Eastern Europe in 1989–90. The northern economy will thereby lose an important market and a source for food and oil, increasing the amount of emergency aid needed from the ROK government.

Chapter II describes how the Soviet demise left the DPRK dependent primarily on China for barter trade, deficit financing, and especially imports of oil and maize. While China insisted that trade be settled in hard currencies at world prices by 1993, it evidently has not fully implemented this policy.[12] After 1989, the DPRK's trade deficit with China ballooned to $300–400 million per year. Since the DPRK's total trade with partners other than China is also in deficit, and since its abysmal credit rating precludes borrowing from commercial sources, it is apparent that China is financing the DPRK's bilateral deficit. Further, China's substantial imports from North Korea may represent a form of barter trade that would not continue under a hard-currency payments regime. For example, it is questionable whether China would continue to import $206 million in steel products (1993) representing perhaps a third of North Korea's steel output.

China has an interest in the preservation of a stable, communist North Korean regime over which it can exercise some influence. However, it seems doubtful that it would wish to subsidize a united capitalist Korea, particularly if that Korea was governed by a pro-U.S. regime. If China does eliminate the subsidies and preferential treatment, say within the first year, the burden on the ROK government to provide oil and food will increase and heavy industry in the north will suffer another blow.

4. Military Demobilization

Following unification, the ROK will have little use for the DPRK's massive military machine. The bulk of the troops will be demobilized as soon as practicable.[13] Further, the demand for military supplies and equipment that has dominated the north's economy will disappear almost instantaneously. This will cause a dramatic decline in overall economic output.

---

12 See, for example, *Christian Science Monitor*, December 28, 1992, 6.

13 Demobilization would be desirable for security and economic reasons. By one estimate, reducing the Korean People's Army by 975 thousand men would save the equivalent of 2.2 percent of the ROK's GNP. See *Los Angeles Times*, March 30, 1993, 3.

Northern plants producing military goods will lose their customers overnight. The ROK will dismantle their prime customer, the Korean People's Army (KPA), and will likely terminate their contracts with such outlaw states as Iran and Libya.[14] Further, the ROK military is unlikely to procure much from northern suppliers initially since it already has its own suppliers and it too will be downsizing substantially.[15] While the north may have a few military production capabilities of interest to the south, perhaps artillery pieces and rocket launchers, many of its factories use outdated technology to produce outdated products, e.g., Soviet-style T62 tanks. Over time, some factories might be able to convert from military to civilian products or qualify as suppliers to the ROK military.

In the short run, however, the bulk of northern weapons factories, and their suppliers, will slash production dramatically.[16] The overall impact will be severe since, as noted in Chapter II, military procurement may have amounted to 27.4 percent of northern GNP and a much larger share of production by heavy industries in 1993. Unemployment, hidden or explicit, will increase dramatically throughout military and heavy industries.

Unemployment will also increase from the supply side as a million soldiers are demobilized. While the DPRK claimed in 1991 to have only 400,000 men under arms, estimates based on northern census data suggest a total of 1.2 million, versus 750,000 in the south.[17] With 5.2 percent of its population in the armed forces in 1990, the DPRK may be the most militarized society in the world.[18] In 1986, its military accounted for at least 21 percent of the male population between the ages of 16 and 54, 12 percent of the total male population, and 6 percent of the total DPRK population. Eventually, returning these men to the civilian work force will greatly enhance the north's productive capacity.

---

14 During the decade ending in 1991, the DPRK's arms exports averaged $381 million per year (matching its average exports), although they were only $160 million for 1991 itself. See U.S. Arms Control and Disarmament Agency 1994, 111.

15 Forces will no longer be needed to counter a northern invasion, but a smaller force to deter interference by Korea's neighbors will be prudent. Downsizing of southern forces may help reassure Korea's neighbors of its peaceful intentions. On the other hand, downsizing might not be possible if certain neighbors seem hostile to the reunified Korea. One ROK Defense Ministry study reportedly called for a unified military of only 460,000 troops. See *Los Angeles Times*, March 30, 1993, 2.

16 For example, the two Koreas produce more steel than any European country except Germany but presumably would need much less after unification. See *Washington Post*, January 5, 1992, C3.

17 Northern forces in 1987 are estimated in Eberstadt 1995, 51–77. For 1991, the Department of Defense estimated a total of 1.2 million.

18 In a comparison of large military powers (around 1990), only Iraq matched the DPRK level. Other shares included 1.8 percent for South Korea, 1.4 percent for the Soviet Union, .9 percent for the U.S., and .3 percent for China. See Eberstadt 1995, 123.

In the short run, however, their return could instantaneously increase the unemployment rate by almost 13 percentage points.[19]

To some extent, the military is already engaged in productive work. Soldiers produce some of their own food and supplies and some are used in mobile work crews for construction projects and mining.[20] Demobilization itself could thus reduce output somewhat. As a temporary measure, the ROK could retain soldiers in a kind of work corps to mitigate the adverse social consequences of unemployment. The work corps could continue existing productive activities and contribute to major infrastructure development projects.

C. MITIGATING POLICIES

Although the starting conditions for scenario 1 are similar to those faced by Germany in 1990, the ROK government may be able to improve upon the policies Germany chose. After all, Korea has had an opportunity to study the results of German policies very carefully.

1. Currency and Wage Policy

Economic union will open the north to aggressive competition from the south, particularly in manufactured goods. If northern industry is to survive this competition, it must maintain a substantial cost advantage through lower wages. Whereas Germany opted for a high-wage policy, the ROK has the option of encouraging low northern wages. As in Germany, however, it will be difficult to do this and still preserve the purchasing power of northern workers.

Economic union under scenario 1 includes quickly establishing a currency union, replacing the northern won with the southern won. It is critical that the ROK choose a currency conversion rate that leaves initial northern wage rates competitive. That is, the ratio of southern to northern wages should be greater than the comparable productivity ratio, which would make wage costs per unit of output lower in the north. To form a rough impression of productivity differences, Table IV-1 presents sectoral measures of GNP per employee in 1990. By this measure, industrial productivity in the south was 8.2 times greater than that of the north.

---

19 This assumes a 1990 work force of 9.4 million. See Eberstadt 1995, 96, 98.

20 See Eberstadt 1995, 23, 64, 76.

Table IV-1. GNP per Worker by Sector (1990)

	Industry	Agriculture	Service	Total
North Korea				
GNP ($m)	13,398	5,775	3,927	23,100
Employment (k)	5,331	2,366	1,655	9,353
GNP per worker ($)	2,513	2,441	2,372	2,470
South Korea				
GNP ($m)	104,676	23,790	109,434	237,900
Employment (k)	5,058	3,942	9,000	18,000
GNP per worker ($)	20,695	6,035	12,159	13,217
South/north GNP per worker ratio	8.2	2.5	5.1	5.4

Source: Based on data from Eberstadt 1995, 9, 69, 96, 98; Kwack 1994, 314; RINU 1993, 61; and *Korea and World Affairs*, Spring 1992, 34.

In 1990, the ratio of southern to northern industrial wages may have been as high as 13.4 to 1. In terms of North Korean currency, the average manufacturing wage in the south was 1,737 won per month while a good industrial wage in the north was 130 won. This comparison assumes an effective exchange rate of 340 southern won per northern won.[21] Based on this wage ratio and the productivity ratio on Table IV-1, the average northern wage cost per unit of output was 62 percent of the southern level. This apparent wage cost advantage might enable some northern industries to compete, despite the relatively poor quality of their products and potentially high costs for other factors of production. However, the advantage would disappear if the currency conversion rate were set at 552 southern per northern won rather than the assumed 340. The advantage would also be lost if northern wages were raised 62 percent (relative to southern wages).[22] Indeed, events since 1990 have probably worked to raise northern above southern unit labor costs, making an even lower exchange rate necessary.[23]

---

21 The average southern manufacturing wage in 1990 was 591,000 southern won per month (Kwack 1994,160). The exchange rate used to convert this wage to equivalent northern currency is determined as the ratio of the 1990 average rate of 708 southern won per US $ to the North Korean trade exchange rate of 2.08 northern won per US $ (Hwang 1993, 64, 121).

22 Some observers report monthly wages at $150 (*Forbes*, September 12, 1994, 179). This is equivalent to 312 won, raising northern unit labor costs 48 percent above those of the south. To restore parity, the conversion exchange rate would have to be set at 230 southern per northern won.

23 The north reportedly raised wages 40 percent in 1992 (Eberstadt 1995, 24) even though productivity was declining thanks to the post-1989 drop in GNP. While southern wages have increased, so also has southern productivity. See the discussion of wages and productivity in Cho Soon 1994, 83–108.

Under scenario 1, the currency exchange rate establishes initial northern wage and price levels, but quickly becomes irrelevant as the northern won disappears. Thereafter, remaining competitive depends on how wages and prices change. Shortly after economic union, prices formerly controlled by the central plan will be freed and subsidies will be eliminated. For the most part, this should result in higher prices, particularly for consumers. While discretionary goods are priced high in the north, the basic necessities are heavily subsidized.[24] For example, some relatively low 1992 prices include:[25]

Subway ride	$.045
Cabbage	$.15 per pound
Plastic ballpoint pen	$.36
Canvas shoes	$1.55

Some relatively high prices--considering that a good wage is $62.50 per month—include:

Women's shoes	$ 10.00
Leather tennis shoes	$ 30.95
Jogging suit	$ 70.48
Vacuum cleaner	$ 85.71
Bicycle	$ 142.86
Television	$ 300.00

Northern workers save a surprisingly high proportion of their meager salaries.[26] A 1984 study found workers saving over 40 percent of their incomes, spending most of the remainder on food and clothing. Spending on housing and utilities accounted for only 3 to 6 percent of income.[27] In addition to price subsidies for food, clothing, and shelter, a substantial amount of food and clothing is distributed without charge to households by the

---

24 For example, in 1992 farm prices for rice and maize were raised to .62 and .78 won per kilogram respectively. However, the state prices for consumers remained unchanged at .08 and .06 won. See Kwack 1994, 171. On unofficial markets, the price of rice was said to be as high as 25 won. See Hwang 1993, 144.

25 See *Wall Street Journal*, May 26, 1992, A12. Similar price examples are presented in Hwang 1993, 131.

26 High savings rates may also reflect the scarcity of discretionary goods to purchase. The DPRK government is evidently concerned about potential inflationary pressure from excessive savings (in savings accounts at the state bank or hidden from view). In 1979 and again in 1992, the government implemented currency reforms that required old currency to be exchanged for new. Such reforms reduce savings by, in effect, confiscating some of the money gained through illegal activities. See Eberstadt 1995, 20, 45; and Henriksen and Lho 1994, 24.

27 See Hwang 1993, 130.

state or by cooperatives. For example, the 1987 free food ration amounted to perhaps 5 percent of national income.[28] Overall, monetary compensation amounts to only 22 to 25 percent of GDP.[29]

There may be considerable pressure to raise wages in the north. The elimination of subsidies and free distributions will reduce the purchasing power of initial wages. Implementing a competitive currency conversion rate, as discussed above, could leave prices of newly available southern imports relatively high and unaffordable. Most importantly, northern workers will be tempted to seek work in the south, where wage levels might be 13 times higher. However, as illustrated by the German case, northern wage increases in excess of productivity gains could quickly eliminate the ability of northern industry to compete. The ROK government, which has had considerable experience repressing southern wages, presumably has the ability to hold down northern wages as well.[30] Further, the union movement is not as strong in South Korea as it was in West Germany, which will give the ROK government a freer hand in setting northern labor policy.[31]

It would not be feasible to repress wages sufficiently to make the bulk of northern industry competitive. Low wages cannot be expected to make up for production inefficiencies, inadequate infrastructure, obsolete equipment, and other costly inputs. Moreover, under scenario 1, dissatisfied northern workers will be free to migrate to the south. While emigration is desirable as a safety valve and a reallocation of idle resources, the government would certainly hope to avoid a disruptive mass movement. On the other hand, one analyst of the German unification suggested that, while initially low wages

---

28 This estimate assumes food worth 560 won per household, 4.05 million households, and national income of 47 billion won. See Eberstadt 1995, 20, 45. See also the discussion of food and clothing distributions in Hwang 1993, 127–131.

29 In Eberstadt 1995, 20, 45, 99–101, compensation is estimated at 31 percent of net material product (NMP), based on very generous assumptions about household wage levels. Eberstadt guesses that NMP in North Korea is 70-80 percent of GDP.

30 For a discussion of early ROK labor policy, see Bello and Rosenfeld 1990, 23–47. Beginning especially in June 1987, the south embarked on a path of democratization. Revised labor laws and relaxed government enforcement led to a burst of union-led strikes and huge wage increases outstripping productivity growth. Fearing a loss of national competitiveness, the government cracked down again in 1989. See Cho Soon 1994, 99, Kihl 1994, 209, and Gong *et al.* 1994, 55. In 1991, the ROK joined the International Labor Organization, which could lead to stronger rights for labor. See *Far Eastern Economic Review*, February 2, 1995, 37.

31 In 1992, 18.5 percent of the south's nonagricultural employees were unionized (Cho Soon 1994, 103). In both eastern and western Germany, 40 percent of the labor force was unionized (Henriksen and Lho 1994, 59).

would encourage emigration, the resulting reduction in the supply of labor would tend to raise wages (in the north).[32] The migration issue is discussed further below.

2. Welfare Policy

The ROK government's welfare policy in the north will also affect the pressure for higher wages. As noted in Chapter III, Germany's generous policy of welfare transfers enabled eastern workers to drive up wages despite rapidly rising unemployment. In the interest of competitiveness, the Korean government might wish to hold welfare payments to an austere level, strengthening employee interest in the survival of their companies and encouraging the unemployed to find employment, for example, in private entrepreneurial activity.[33] However, for humanitarian and political reasons, the government will have no choice but to provide for the survival of the northern population. Further, the existence of an adequate safety net may be a prerequisite for proceeding with the mass layoffs necessary to restructure industry and establish a privatized market economy.[34]

The ROK itself has a relatively austere social welfare program, certainly compared with that of Germany. For example, in 1991 the ROK government spent 11.3 percent of its budget on social security, welfare, and housing.[35] West Germany, in contrast, spent 48.9 percent. The ROK generally provides poor unemployment, health, and retirement benefits.[36] It relies on its people to take care of themselves and their relatives in need, although some welfare payments are available for invalids without familial help. The government spends relatively little on health care, instead encouraging individuals to purchase individual insurance policies.[37]

---

32 Wages would increase gradually, giving enterprises time to adjust. See the discussion of the organic system transformation model in Sinn and Sinn 1994, 145–51,

33 Because northern living conditions are already quite austere, welfare payments that covered only the barest necessities would not worsen conditions for most people. See Henriksen and Lho 1994, 38.

34 China, for example, has been stymied in its attempts to reform its large state-owned enterprises because there is still not an adequate safety net in place. The Chinese government is unwilling to risk the political turmoil that would accompany the needed layoffs.

35 See World Bank, *World Development Report* 1993, 259.

36 See Hwang 1993, 123, 131.

37 See Eberstadt 1995, 121, 128. Both Koreas have relatively low life expectancy.

The ROK's social welfare program would be extended to the north after unification. Its austere nature should reduce unification costs relative to the German case.[38] However, northerners might have some difficulty adjusting to the new program. On paper, the DPRK is a complete welfare state, with free health care and day care, guaranteed employment, and retirement pensions.[39] It is not clear how good the system is in practice, since the quality of northern medical facilities is said to be inferior and many northerners continue working past retirement age. The people nevertheless may not be accustomed to individual self-reliance as practiced in the south. At least on a transitional basis, the ROK may have to support the DPRK's welfare system.

3. Restructuring Policy

The ROK government might follow a more activist industrial policy than the German government.[40] It has intervened extensively in South Korea, using a mix of government ownership, preferential credit, and pervasive regulations to promote strategic industries and protect and rationalize failing ones.[41] Thus, opening the north-south border to goods and capital flows will not expose the north to true laissez faire capitalism. The government can be expected to pressure southern conglomerates to invest in the north and to block those investments it deems inappropriate.[42] It would not be surprising to find the ROK government selecting northern industries for salvage, making preferential credit available, and soliciting the participation of southern capitalists. While the efficiency of industrial policy is controversial, its use may materially change the course of northern

---

38 Korea's younger population should also help reduce unification costs. The median age for the combined Korean populations is 12 years younger than that of the Germans. Korea has 1 person over 65 for every 15 people of working age, while Germany has 1 for every 5. See Eberstadt 1995, 117. On the other hand, democratization may cause the ROK to improve its social welfare program, thereby increasing the potential cost of integration with the northern economy.

39 See Henriksen and Lho 1994, 43–44 and Jordan 1993, 41.

40 Both the West German and the South Korean governments pursue an active industrial policy, but recent Korean experience has probably been more intense.

41 The ROK relied on nationalized banks to control the allocation of credit and subsidized interest rates during the 1960s and 1970s. Beginning in the early 1980s, the banks were nominally privatized, but the government retained de facto control by appointing managers and rationing credit from its central bank to the commercial banks. See Kwack 1994, 106, 116–119, 136, 139.

42 Probable ROK government pressure on conglomerates to invest in the north is noted in Henriksen and Lho 1994, 39 and *Business Week*, July 25, 1994, 43. Possible investment subsidies and tax breaks are mentioned in *Business Korea*, April 1993, 2. The ROK's attitude toward FDI from other countries is less clear. The south has a long history of restricting inward FDI, although it has liberalized its rules in recent years. See *Economist*, July 16, 1994, 21 and Gong *et al.* 1994, 56.

development.[43] However, if the ROK is able to liberalize its domestic economy further, for example by freeing interest rates, its ability to implement industrial policy will be weakened.

The German approach to privatizing the eastern economy, described in Chapter III, can be characterized as short-term industrial policy. The Treuhand, which implemented the program, evaluated and restructured industries and negotiated investment and employment commitments with the buyers of its companies. However, its overriding objective was to sell its assets and disband. While preferential programs to promote eastern development persisted, western capitalists are playing the principal role in restructuring the eastern economy. In some cases, they have abused their advantageous positions.[44]

ROK planners may also question the German privatization approach of selling government-owned companies, for the most part, to the highest cash bidder. Most eastern Germans and companies did not have the requisite money or access to credit, with the result that western capitalists now dominate—almost colonize—the eastern economy. Used in Korea, this approach will disempower northerners, denying them a stake in the economy or a voice in determining their own development. Moreover, some southern capitalists may prove more interested in speculating in northern assets or protecting market positions and sunk capital in the south than in making productive northern investments.[45] An alternative approach would be to distribute ownership of northern assets to the northern population under some type of voucher system.[46] The major problem with such a giveaway approach is that it leaves the old factory managers in place, without market know-how, modern technology, or access to capital. The virtue of the highest bidder

---

43 For example, ROK bureaucrats reportedly preferred to work with entrepreneurs with proven success, contributing to the domination of the southern economy by conglomerates (Kwack 1994, 157–159). Southern bureaucrats might prefer to work with those same conglomerates in developing the north. For an analysis of the role of industrial policy in promoting East Asian development, see World Bank 1993. For a discussion of Korean development policy, see Cho Soon 1994.

44 As noted in Chapter III, some western investors have been accused of buying and shutting down potential eastern competitors or of buying and discarding factories in order to acquire valuable land. Certainly, the Treuhand's mandate to sell its assets quickly flooded the market and distorted asset prices.

45 However, because economic growth is much faster in the South Korean than the German case, southern industrialists may be more interested in building new, and have less need to protect existing, factories.

46 This approach was used, for example, in countries such as Russia and the Czech Republic.

approach is that it brings in a capitalist with access to all of these. Anything that diminishes that capitalist's share of future profits, for example giving northerners minority stakes in the sold companies, also diminishes the capitalist's potential pay-off from subsequent modernizing investments.

Rebuilding the northern economy will depend primarily on private capital invested in productive enterprises. ROK policy on accepting private investment from sources outside Korea will thus be important. Outside investment would speed development by incrementing the capital and management expertise that the southern capitalists can bring to bear in the north. Further, competition between Korean and foreign capitalists would improve the efficiency of the northern economy. However, the ROK severely limited the participation of foreign investors in its own development, relying mainly on loans rather than direct equity investment. While the ROK began liberalizing its regulations in 1984, substantial restrictions persist.[47] Moreover, southern capitalists have already expressed their fears of Japanese competition to set up northern factories.[48] Perhaps the huge demands for capital after reunification will prompt the ROK to open up to direct investment in both the north and the south. It would not be surprising, however, if the ROK maintained its planned restrictions.

D. MIGRATION

One of the successes of German policy was that it held emigration from the east to tolerable levels. This success might be reversed in the Korean case if the ROK enforces a low-wage policy in the north. Migration prospects thus deserve careful analysis.

Unification will necessarily be accompanied by population movements. Some in the ROK fear a massive migration from the north to the south. Hunger and violence may also displace people within the north. The ROK government must both provide sustenance to the refugees and ameliorate the circumstances causing migration.

The specter of massive north-south migration looms large in the thinking of unification planners in South Korea. In 1991, for example, the ROK government did contingency planning for an influx of 1 million refugees from political turmoil in the

---

[47] See Kwack 1993, 141. A Western diplomat in Seoul characterized South Korea as "still not a very hospitable place" for foreign investors. See *Far Eastern Economic Review*, June 22, 1995, 44. Foreign portfolio investors are allowed to own only 15 percent of a company's equity. While this limit may be raised, majority control of Korean companies will not be permitted. See *Business Week*, July 31, 1995, 63.

[48] See *New York Times*, November 8, 1994, 20.

north.[49] A 1994 government study estimated that a North Korean collapse could cause 4.5 million northerners to migrate to Seoul.[50] Migration of this magnitude could bring the reality of unification home to the south in a very disruptive way. In addition to paying relief costs, southerners would see their cities ringed with slums and find desperate northerners competing for unskilled (and other) jobs.[51] Avoiding such turmoil is thus a major factor in the south's unification planning.

The south has experienced large refugee inflows before. An estimated 3.5 million people fled the DPRK as it introduced communism during the 1945–50 period.[52] Another 1 million fled to the south during the 1950–53 Korean War. These people might have 4.5 million relatives in the north who would be tempted to join them.

ROK planners are also mindful of the experience of migration from East to West Germany. During the 1950s, an average of 220,000 people migrated from east to west each year.[53] When the Berlin Wall was erected On August 13, 1961, 1,000 to 2,000 were leaving each day.[54] From that time through 1988, east-west migration averaged barely 23,000 people per year. Then, in the first 10 months of 1989, 167,000 migrated.[55] During the next 2 months, after the borders between the two Germanies were opened on November 9, 1989, another 177,000 moved. This surge continued for the first 3 months of 1990, with another 184,000 migrants, bringing the 5-month total to 361,000. The movement then dropped dramatically to only 55,000 during the April–June period, after Chancellor Kohl had proposed economic union (February 6) and his pro-unification political allies had won the parliamentary election in East Germany (March 18).

While the surge in East German migration was dramatic, the data also suggest a certain reluctance to move. In 1989, for example, 97.9 percent of East Germany's population of 16.4 million did not migrate to West Germany. Further, migration rates

---

49 See Kihl 1994, 141.

50 See the summary of the study by the 21st Century Committee in *Wall Street Journal*, May 16, 1994, A13.

51 The path to the south leads through Seoul, less than 40 miles from the north-south border. Seoul and vicinity are already home to some 41.5 percent of the south's population. See Kihl 1994, 176.

52 See *Far Eastern Economic Review*, August 22, 1991, 21–25.

53 See Lipschitz and McDonald 1990, 131.

54 See Kihl 1994, 285.

55 Some 13,000 visiting East Germans migrated via Hungary after that country opened its border to Austria for them in May 1989. Another 17,000 migrated via Czechoslovakia and Poland. For discussion of migration, see Lipschitz and McDonald 1990, 1, 20, 50, 130.

dropped by 70 percent after reunification appeared likely. While a November 1992 poll suggested that 45 percent of East Germans under the age of 30 intended to migrate eventually, there was evidently no urgency once the opportunity to migrate appeared permanent.[56]

The German experience is not entirely applicable to the Korean situation. The East Germans, after all, were threatened with a stagnant future rather than starvation or mass violence. The German case nevertheless suggests that, once Korean conditions have stabilized, economic migration from north to south might proceed in an orderly, measured manner. For North Korea, with a population 38 percent larger than East Germany's, out-migration of 2.1 percent per year would amount to 475,000 people. Perhaps even more would move since the economic gap is much wider between the Koreas than between the Germanies.[57] On the other hand, years of television, visits, and generous refugee assistance programs made West Germany a familiar, appealing place for easterners considering migration; North Koreans in contrast have received only negative propaganda about living conditions in the south.

The key factor in avoiding a massive stream of north-south refugees will be creating tolerable living conditions quickly in the north. The ROK government must immediately bring food, shelter, and safety to northerners so that they do not need to seek it in the south. Perhaps the greatest risk of mass migration would be during a preliminary period when conditions in the north might deteriorate before the ROK government had an ability to control events.[58] Desperate migrants might then overwhelm the north's capability to prevent emigration.[59] The ROK might need to create huge refugee camps in the south until the refugees could be repatriated or released in a controlled manner into South Korea.[60]

---

56 The poll result is reported in RINU 1993, 148. Another survey reportedly concluded that 75 percent of eastern university students preferred to stay in the east, even at jobs paying less than half the wage rates available in the west. See Henriksen and Lho 1994, 56.

57 Per capita GNP for West Germany in 1989 was roughly double that for East Germany. It is eight times higher (in 1993) in South Korea than in North Korea. See Chapter II and, for Germany, the *International Journal of Social Economics*, No. 10, 1993, 16.

58 Indeed, such a situation would create pressure for the ROK to intervene militarily.

59 Alternatively, a reformist northern regime might choose not to control emigration tightly.

60 North Koreans near the Chinese border would probably flee to China rather than southward, especially because there is a large ethnic Korean population in that part of China.

E. SECTORAL PROSPECTS

Much of the northern economy will collapse after economic union. However, light industry, agriculture, and services may do much better than heavy industry.

1. Heavy Industry

The prospects for northern heavy industry immediately after economic union seem dismal. As discussed in Chapter II, most production methods and equipment are obsolete and product quality is dubious. Even if northern wages are kept low, it is doubtful that capital-intensive heavy industries can compete with the world-class export industries of the south.[61] Capacity utilization has already been reduced to 50 percent or so due to the loss of Soviet-bloc trade preferences. Moreover, heavy industry will face the demand shocks mentioned above. The military orders that dominate heavy industry will disappear almost overnight. The China exports that utilize a significant share of northern steel capacity may also disappear, say within the first year. One way or another, most of this capacity will be shut down and layers of redundant workers will be laid off from the few factories that survive.[62]

In the longer term, prospects for new heavy industry are somewhat brighter. Heavy industry in the south is growing and, if decent infrastructure is put in place, will expand to the north. This expansion will be voluntary as southern firms take advantage of the north's educated work force, plentiful land, resources, and lower costs. Further, the ROK government can actively divert investment to the north through a combination of inducements and regulations. For example, while the government has already denied Hyundai's bid to enter the steel industry with a major investment in the south, Hyundai might build its mill in the north if the government gave permission and financed the necessary infrastructure.

2. Light Industry

The prospects for light industry are complex but perhaps not as dismal. A number of labor-intensive export factories and localized consumer goods producers might survive.

---

61 Some single out the chemical industry as particularly uncompetitive, citing for example the attempt to make lime-based synthetic fiber. See Henriksen and Lho, 44–45.

62 North Korea's labor participation rate is unusually high, suggesting that many marginally employable people, especially the old and infirm, are given jobs as a form of welfare. A serious restructuring would eliminate such jobs. See Eberstadt 1995, 125.

The existing joint-venture export processing factories discussed in Chapter II should continue to be competitive, provided northern wages do not bolt upwards. However, the attitude of their Korean-Japanese investors could create problems. Some of the joint-ventures associated with the pro-DPRK Ch'ongryon might be dissolved if they were made for patriotic reasons rather than profit. This would not be a problem for any preexisting southern investments in the north. While those are minimal today, there might be more if scenario 1 does not occur for a few years.

Northern consumer goods industries might have decent prospects if the ROK government enforces a low-wage, low-welfare policy. Most of these factories are localized. They are small and presumably labor-intensive with low productivity. They survive through captive local markets. If wages remain low after economic union, many of these factories could survive by selling low quality products at low prices to low income northerners. Following privatization and the opening of markets, this could become an important growth sector and source of northern entrepreneurs.[63]

The localized consumer goods factories will nevertheless collapse to some extent. Some will prove insolvent once local subsidies are withdrawn. Others will be driven out by competition from expanding rivals in neighboring locations. Further, even if southern goods are initially too expensive for most consumers, that will change as northern incomes rise. With that in mind, southern investors will be eager to buy up local factories or build new ones. The opportunity for localized factories to survive as is will thus be short-lived.

3. Agriculture

The fate of the agricultural sector, which employs 25.3 percent of the north's civilian work force, is very important during the post-union adjustment period. However, its survival prospects seem to vary by type of crop.

The outlook for rice, which accounted for 36 percent of the 1992 grain harvest, should be relatively bright.[64] Southern rice prices are quite high, with 1990 farmgate prices 5.5 times higher than the world level.[65] To promote self-sufficiency in rice (and barley) and improve rural incomes, the ROK government provides subsidies, price

---

63 In China, localized rural industries have been an important source of growth since the advent of economic reforms in 1979.

64 See RINU 1993, 47.

65 See Eberstadt 1995, 31.

supports, and import controls.[66] The southern rice market remains largely closed to foreign imports, despite a token opening under the recent General Agreement on Trade and Tariffs (GATT). Since the north is chronically short of rice, economic union should result in northern rice prices rising quickly to southern levels.[67] Supporting that price in the face of low northern incomes will be very expensive for the ROK government.[68]

For other grain crops, e.g., corn, wheat, and millet, the south is a major importer and price levels can be expected to approach world levels.[69] Corn imports from efficient foreign farms would severely challenge the north's maize farms and drive most of them from the market.[70] This would have a major impact since maize amounted to 49 percent of northern grain crops in 1992.

As discussed in Chapter II, northern farms produce at a high cost, at least relative to world levels. Natural yields are low due to poor land and a harsh climate. This is particularly true for maize farms which have expanded onto marginal land, including hillside terraces. While the relatively large size of northern farms makes them suitable for mechanization, evidently not much of that has occurred. As suggested by Table IV-1, northern farms are labor-intensive compared to the south, with 2.5 times more workers per unit of output. Northern fertilize usage is high relative to world levels but somewhat lower than southern usage per hectare.

---

66 In 1991, government warehouses held 2.5 million tons of rice representing 30 percent of annual consumption. Subsidy levels are fixed annually by the ROK legislature. Despite retail prices 5 times higher than the world level, the government loses money when it sells rice to consumers. The Grain Management Fund has incurred cumulative losses amounting to $6 billion. See *Far Eastern Economic Review*, November 21, 1991, 68–69.

67 The northern farm price for rice was reported as $620 per ton in 1992 (Kwack 1994, 171), assuming a trade exchange rate of 2.08 won per $. This is 1.8 times the Bangkok price ($345) for September 1995 (*Far Eastern Economic Review*, September 14, 1995, 84) and apparently less than half of the ROK price.

68 At the southern retail price, rice would be unaffordable for most northerners. However, unless the government establishes a rationing scheme for the north, it will be difficult to maintain a lower retail price there.

69 Import protection is provided for pork, poultry, and dairy products as well as barley, potatoes, soybeans, and certain fruits. See *Agricultural Outlook*, April 1992, 32; and U.S. Trade Representative 1991, 139.

70 The northern farm price for maize was reported as $780 per ton in 1992 (Kwack 1994, 171), assuming a trade exchange rate of 2.08 won per $. This is 6.7 times the Chicago price ($117) for September 1995 (*Far Eastern Economic Review*, September 14, 1995, 84) and thus far above the price in the south.

Northern farms are organized as collectives and a few state farms. Presumably the ROK government would attempt to privatize these as small family farms, although a portion of the land will prove uneconomical to farm.[71] Hopefully, efficient farm sizes will be permitted, although southern farms average only 1.2 hectares apiece and were legally limited to a maximum of 3 hectares.[72] Much southern agriculture is characterized by the suboptimal use of small machines on very small fields.[73] While southern yields appear to be higher, e.g., 3,948 kilograms of rice per hectare versus 2,508 in the north in 1992, it is not clear how northern and southern production costs compare.[74]

After union, low wage costs could give the north an advantage in certain labor-intensive crops and livestock, particularly if southern farm subsidies are extended to the north. Overall, though, the farm sector will face a severe post-union crisis.

4. Services

Service employment will expand in some areas, contract in others. As suggested by the German example in Chapter III, some services are currently absent or underdeveloped, e.g., commercial banking, restaurants. Construction may also do well as southern funding initiates infrastructure and tourist-related projects. In addition, northern labor may find an outlet working overseas for southern construction companies. Growth in such areas, however, might be offset by the elimination of probable overstaffing in other areas such as retail trade, transport, and government.[75]

---

71 Farms on the western plains of Pyongan and Hwangbae are expected to survive while marginal upland areas may be depopulated or converted to ranches. See Henriksen and Lho 1994, 44.

72 See Eberstadt 1995, 33. In 1991, raising the legal limit to 20 hectares was discussed. See *Far Eastern Economic Review*, November 21, 1991, 4-5.

73 See *Agricultural Outlook*, April 1992, 32.

74 See RINU 1993, 47. A yield of 4,000 kilograms per hectare is evidently considered decent. Reclaimed farmland in Sumatra, Indonesia yields that on average, although prime areas of Java, Indonesia produce 6,000 kilograms per hectare. See *Far Eastern Economic Review*, September 7, 1995, 59.

75 The north devotes a relatively high share of its work force to health care, namely 2.3 percent (in 1986) versus 1.5 percent in the south. Per 10,000 people, the north reportedly has 3 times as many doctors, about the same number of nurses, and 7 times the number of hospital beds. This comparison may reflect the fact that northern health care is provided free by the state while southern care is characterized by private practitioners and only limited health insurance (Eberstadt 1995, 107–110, 128). It is not clear whether the ROK will maintain existing northern service levels. Health care employment might well be cut back, although both Koreas spend a smaller share of national income on health care than most developed nations.

Overall, the 1989 share of services in northern GNP was only 17 percent, unusually low even among communist countries.[76] For example, the service share averaged 51 percent for lower-middle-income countries like North Korea, 63 percent for industrialized countries, and 36 to 50 percent for the Soviet Union and eastern Europe. Only China came close, with a service share of 20 percent. While this suggests that service employment might eventually grow in the north, initially low incomes and inadequate supporting infrastructure will prevent any explosive growth immediately after economic union.

76 See *Korea and World Affairs*, Spring 1992, 34.

V. SCENARIO 2: ECONOMIC INTEGRATION AFTER POLITICAL UNION

The second scenario, gradual economic integration after political union, begins under the same political circumstances as scenario 1, but the ROK government responds differently. In particular, it chooses to maintain the north temporarily as a separate region subject to distinct rules. This could be called the one country, two systems approach.[1]

A. INTRODUCTION

Governing the north as a separate region would enable the ROK government to control the direction and pace of economic integration. By protecting the northern economy, the government could mitigate its collapse and thereby reduce welfare relief costs. This would be achieved by restricting the movement of goods, capital, and people between north and south.[2] The northern economy would be transformed, at an orderly pace, to a privatized market system. Freedom of movement between the two regions would be increased gradually until full integration was achieved. As discussed in Chapter I, the goal for economic integration is that the north be self-supporting in a competitive environment. Substantial differences in per capita income would nevertheless persist long after integration was achieved.[3]

Maintaining the north as a separate region would provide the ROK's economic planners with some important policy levers. At the same time, however, it would create political problems. Most importantly, it is not clear that the northern population would

1 The People's Republic of China will follow a similar approach when it takes control of Hong Kong in 1997. For 50 years, Hong Kong will be a special administrative region with a capitalist economic system and a distinctive form of government.

2 The basic scenario 2 approach, with controls on migration and maintenance of separate currencies, was proposed in a 1992 study by the ROK Finance Ministry (New York Times, January 31, 1993, 15). Woo Sik Kee at the Sejong Institute proposed establishing the north as a special administrative zone with emigration controls and a separate currency, but would allow some northern autonomy in economic management (Gong *et al.* 1994, 58).

3 For example, economic integration might be achieved in 5 or 10 years while parity in per capita income might take decades.

accept continued separation from the south.[4] For example, if political unification is triggered by popular demands for the rich southern lifestyle, then continued controls on migration would face mass opposition. On the other hand, if unification is arranged by northern elites to avert economic collapse, the public might accept temporary border controls.[5] In either case, controls should be designed to permit the reunion of separated families as well as an orderly flow of economic migrants.

Another key political issue is the reversibility of unification. Quick economic integration could help cement the political union.[6] The regional approach, on the other hand, would preserve economic separation and foster a northern consciousness of being separate, different, and perhaps second class. The inevitable frustrations and hardships still ahead for northerners could feed future separatist movements. To guard against this, the northern area should probably be governed by the central rather than a separate regional government.[7]

Restrictions on the flow of goods and capital might generate opposition from southern capitalists eager to stake their claims to northern resources and markets. However, the essence of scenario 2 is to restrain and channel the enthusiasm of those capitalists.

B. MIGRATION CONTROLS

By controlling migration from the north to the south, the ROK government would have a freer hand to maintain a low-wage policy in the north. Low wages, in turn, would permit more existing enterprises to survive and would promote the growth of exports.

As noted above, the south's nightmare of a massive inflow of panicked refugees could be precluded by an effective emergency relief program in the north. The south's greatest vulnerability will be during the pre-unification period if southern relief is not allowed to enter the north. After political unification, potential northern migrants will make

---

4 The reactions of northerners after discovering the prosperity of the south and seeing their own economy collapse are unpredictable. There could be irresistible pressure for mass migration (Eberstadt 1995, 155) or a selective desire by the adventuresome to try their luck in the south (Henriksen and Lho 1994, 61).

5 Malaysia, for example, still maintains immigration controls between its original peninsular territory and the Borneo states of Sabah and Sarawak, which joined the country after its founding.

6 The speed of economic union in the German case reflected, in part, a strategy of making unification an irreversible fait accompli to ward off potential opposition from the Soviets and others. See Henriksen and Lho, 56.

7 The southern structure of provincial and local governments should be established in the north.

a more rational calculation, weighing the comfort of home against the potential for higher income in the south. Over time, if low wages encourage enough northerners to emigrate, the supply of labor will be reduced and northern wages will begin to rise.[8] The purpose of migration controls is to stem the loss of northern labor and retard the rise of wages. This would be particularly important for relatively scarce skilled workers and professionals.

Controls would be both partial and temporary. In addition to reuniting families, some amount of economic migration should be permitted. Compliance with the controls is likely to be higher if potential migrants believe that they can eventually migrate legally. Further, orderly migration of unemployed northerners to the labor-short south will increase overall Korean output and reduce welfare costs. The government can monitor labor conditions in both areas and adjust entry quotas as appropriate. Controls can be removed when northern labor markets have stabilized with wages at a competitive level and southern labor markets appear ready to absorb the non-controlled inflow.

C. SEPARATE CURRENCY

Because scenario 2 delays economic integration, the northern currency need not be replaced immediately by the southern currency. The exchange rate between the two currencies can then be adjusted as necessary to keep northern price levels competitive.[9]

Maintaining separate currencies could supplement other efforts by the ROK government to control northern wages. For example, an uncompetitive increase in northern wage and price levels could be offset by a devaluation of the north's currency, restoring the original export price level.[10] The ROK government would manage the exchange rate either administratively or through intervention in currency markets. Eventually, currency markets might provide a decent guide to what currency exchange rate should be used when a currency union is established. Repressing wage levels by manipulating exchange rates might be easier politically than more obvious direct intervention in the labor market.

There are nevertheless certain negative consequences of delaying the eventual currency union. Most importantly, the potential variability of north-south exchange rates

---

8 See the discussion of wages and emigration in Sinn and Sinn 1994, 145–150.

9 This approach is suggested by Youngyoon Kim and Young Hoon Lee in *Korean Journal of National Unification*, Vol.3, 1994, 267. They suggest that a united Korean government could manage the north as a special zone. A new currency would be exchanged 1:1 with the existing northern currency. The Bank of Korea, the south's central bank, would manage both currencies.

10 To avoid an inflationary spiral, a devaluation should be accompanied by other policies to stabilize domestic wage and price levels.

would increase the risk associated with southern investments in the north. Currency union would eliminate the exchange risk and thus encourage investment. Maintaining dual currencies would also delay market adjustment to the price levels that would eventually be established under currency union. Markets would adjust instead to some intermediate set of prices, possibly increasing eventual total adjustment costs.[11]

D. TRADE PROTECTION

Scenario 2 would enable the ROK government to maintain tariffs, quotas, and import licensing requirements to protect northern industries and farms from southern competition. This could reduce the extent of the collapse of the northern economy at the time of economic union.

Competitive wages might enable some northern companies to compete by offering low-quality, low-price alternatives to imported southern products. Competing on this basis, however, might require substantial layoffs of redundant workers. Other companies are so inefficient and produce with such low quality that free trade would quickly drive them from the market. Protection from imports could support employment at both types of companies, although privatized companies might shed redundant workers with or without import protection.

Protecting inefficient northern firms is wasteful and delays the restructuring and reallocation of resources necessary to develop the northern economy. However, as a temporary, short-term measure, it might be less costly than welfare transfers to support those who would otherwise be unemployed.[12] The wisdom of this type of indirect subsidy would vary from company to company. Some firms are so inefficient or make such useless products that shutting them down and paying welfare would require fewer resources, although that might increase the costs paid by the ROK government. Import protection might be particularly useful for maize farmers who would otherwise have to compete with efficient global suppliers.

---

11 For example, an exchange rate determine largely based on trade in industrial goods would not reflect relative north-south productivity for non-traded goods and services, thereby distorting investment decisions.

12 Protection would inevitably impose costs on northerners who would be forced to pay higher prices. The level of protection should be designed so that these costs do not exceed the alternative welfare costs of supporting the unemployed.

Over a longer time horizon, import protection could also be used to foster northern development. For example, southern companies hoping to establish a position in northern markets might be forced to build factories in the north if trade barriers prevented them from selling products shipped from southern factories. Further, trade protection might be used to give northern entrepreneurs an opportunity to establish themselves before facing the full onslaught of southern competition. That could be important for political reasons or to assure balanced development.

Besides delaying the necessary restructuring of northern industry, temporary trade barriers would cause other problems. For example, temporary protection is difficult to remove. Those who benefit come to view it as an entitlement, particularly if they make investment decisions assuming that protection will continue. Protection could also create problems with the ROK's foreign trading partners. While the DPRK is not a party to the GATT agreement, the ROK is. Trading partners, including the US, might view the erection of north-south barriers as a violation of the ROK's previous GATT commitments.[13]

E. DUAL SYSTEMS

Under scenario 2, the transition to a privatized market economy need not occur immediately after political union. Instead, the ROK government could temporarily retain and operate part or all of the old northern system. The transition to the southern system could occur gradually and with preparation, thereby reducing the trauma and possibly the cost.

The prime motivation for retaining the old system would be to enable the northern economy to continue to be self-supporting. If this proved possible, then the need for emergency welfare transfers would be greatly reduced. Under this approach, the ROK government would retain at least the core of central planning, allowing markets to develop over time. Production units would similarly be transformed only gradually into autonomous, financially accountable companies. Privatization would initially include only

---

13 Trade barriers to protect the north might be viewed as new barriers imposed by the ROK government, which has long claimed the entire Korean peninsula, even though the previous DPRK government maintained its own measures to restrict imports.

smaller companies, although southern and foreign investment would be encouraged. Subsidies would be phased out and non-viable industries would be shut down when the emerging private sector could absorb those laid off. In short, the ROK would lead the north through a process similar to that followed by China since 1978.[14]

The feasibility of this approach can be questioned since the northern economy may have already broken down. Certainly, the loss of military orders will devastate what is left of heavy industry, which is the prime object of central planning. Moreover, it is not clear how well the ROK government could operate a centrally planned economy. ROK planners would surely have second thoughts about relying on leftover DPRK planners. Further, if the old DPRK planners had not been successful micro-managing the economy, why would ROK planners be able to micro-manage both the economy and its transition? And even if the ROK could keep the old system going, that would delay the start of long-range development to raise northern living standards.

F. EXPERIENCE OF EASTERN EUROPE

Russia and the countries of Eastern Europe are undergoing traumatic transitions from communist to market systems. In transforming their economies, these countries possess the same policy tools discussed above for scenario 2. Their experience thus might provide a rough indication of how useful scenario 2 would be for Korea.[15] Unfortunately, they have not fared much better than East Germany.

The eastern transformations resemble scenario 2 because they are taking place behind international borders. Each country is free to maintain tariffs and other trade barriers to protect its producers from foreign competition. Each maintains its own currency, whose value can be adjusted to help keep domestic producers competitive. And potential emigrants from these countries are subject to border controls, imposed mainly by richer western countries that want to limit immigrant arrivals. Finally, each eastern country is free to determine its own pace of transformation.

At the same time, there are some important differences between the eastern transformations and the German and Korean cases. Most importantly, none of the eastern countries has received as much financial help as East Germany has and North Korea

---

14 The Chinese reform process, however, has been stymied by a reluctance to lay off redundant workers at the large state-owned enterprises.

15 This experience is also relevant for scenario 3, discussed in Chapter VI.

would.[16] Further, the potential for emigration is surely lower for Eastern Europe since emigrants would typically be joining alien ethnic groups with different languages and customs.[17]

The early experience of the eastern countries is summarized in Table V-1.[18] Whereas East Germany's industrial output dropped by 67 percent in less than two years (see Chapter III), output in Eastern Europe dropped by an average of 40 percent over four years. Moreover, while East German industrial employment dropped by 47 percent, Eastern European employment dropped by an average of only 19 percent. Employment thus dropped roughly half as much as output in Eastern Europe but by 70 percent of the output drop in East Germany.

Table V-1. Industrial Change in Eastern Europe

	1989-1993 % Change in Industry	
	Output	Employment
Bulgaria[1]	-29.49	-36.12
Czech Republic[2]	-41.70	-8.04
Hungary	-33.74	-22.40
Poland	-33.22	-26.30
Romania[3]	-55.40	-17.26
Russia[4]	-37.40	-11.87
Slovak Republic[2]	-49.91	-13.48

[1]Both comparisons are for 1989–1992.
[2]Employment data is total employment.
[3]Employment comparison is for 1989–1992.
[4]Both comparisons are for 1990–1993.
Source: World Bank 1995, 2, 46, 94, 148, 198, 238, 245.

The main message of these statistics is that, despite their international borders, the Eastern European countries suffered severe drops in both output and employment. The shock of transforming their economic systems, together with the disruption of Soviet-bloc trading and a drop in military procurement, combined to create severe industrial depressions.[19] If their depressions were milder than East Germany's, that could reflect

16 In the German case, outside financial aid enabled restructuring to proceed more quickly by cushioning its social impact. In other cases, outside aid might be used more to subsidize producers and thus retard restructuring.

17 Reduced emigration opportunities should ease pressures for wage increases to match foreign levels.

18 Table V-1 and the following discussion are based primarily on World Bank 1995.

19 Output declines can be attributed to aggregate shocks and general credit squeezes as well as some shifting of resources to more promising sectors (World Bank 1995, 300).

both protection from foreign competition and a slower pace of transformation, especially through continued subsidization of large state-owned enterprises.[20] In addition, Eastern European wage levels, adjusted for inflation, increased by much less than those of East Germany. During the first 2 or so years of transformation, this enabled unit labor costs to stay constant or decline in all of the Eastern European countries except Poland, where they increased by 50 percent.[21]

The Eastern European experience thus suggests that the added policy tools of scenario 2 can affect the course of industrial restructuring. Employment declines were moderated through both wage discipline and producer subsidies. The Eastern European governments nevertheless had to pay for the subsidies, which might be considered a form of unemployment relief.

---

20 In all of the Eastern European countries, significant parts of the government-owned sector survived through external financial support. See World Bank 1995, xix.

21 See World Bank 1995, 307–308.

VI. SCENARIO 3: ECONOMIC INTEGRATION BEFORE POLITICAL UNION

The third scenario, gradual economic integration before political union, assumes that an independent northern government survives. The northern economy develops over time with southern help. The two economies integrate gradually and, by the time political union takes place, they are virtually one.

A. INTRODUCTION

The fundamental feature of this scenario is that unification is delayed until it can be accomplished without traumatic breakdowns and a costly emergency relief program. While prior economic aid from the south is necessary, it can be disbursed in measured, affordable amounts, little of which need be paid in the near future. The principal exception would be if the south chose to provide moderate emergency aid to prevent the imminent collapse of the northern regime. Barring that, aid would begin with good will gestures, build gradually to more substantive inducements for northern reform, and eventually entail serious infrastructure investments and budgetary subsidies. At the same time, the northern economy would increasingly be opened to southern trade and investment as it became more competitive. The DPRK itself would manage a gradual transition from central planning to a market system. However, large differences in per capita income might persist long after economic integration was completed.

The gradual approach to unification has been proposed for both economic and political reasons.[1] The economic motivation is to delay and reduce unification costs. Over time, ROK aid and DPRK reform could reduce the disparity in living standards and the incompatibility of economic systems. The two economies could be prepared and largely

---

1 Analysts at the Korean Development Institute, for example, have proposed the gradual approach as a way of delaying costs and preparing both economically and politically for unification (*New York Times*, May 30, 1991, 25, *Forbes*, September 12, 1994, 179, and Eberstadt 1995, 155). Experts at the Research Institute for National Unification have also proposed delayed unification to give both the north and the south time to develop and prepare (RINU 1993, 254).

integrated before the moment of final unification arrives. Politically, the gradual, economics-first approach may be the only realistic option. Mutual mistrust and vastly different political systems seemingly preclude a successful political confederation in the near future. Economic cooperation might help build trust and stimulate northern economic reforms. In turn, economic reforms might lead to political reforms. Increasing awareness of southern prosperity might eventually induce the northern population to demand unification.

The political risks associated with this approach are high. In the near term, the south would be providing aid and helping stabilize a recalcitrant DPRK regime with a long history of duplicity, hostility, and aggression. Even if a more reform-minded regime came to power, the danger would remain that the ROK was helping to develop its once and future enemy. Political détente and military force reductions should thus be prerequisites for serious economic aid.[2] However, an agreement on mutual force reductions would be a major southern concession, given its much greater ability to fund defense spending.[3]

There is also a risk that successful northern development would delay rather than induce political reunification. The north's potential gains from unification would lessen if it could receive the benefits of southern aid, investment, and markets without political unification.[4] Further, northern leaders might resist being submerged politically within the larger ROK, particularly if the northern system was not yet democratically accountable.

Certainly, the current DPRK regime is strongly committed to surviving with its sovereignty and political and economic systems intact.[5] The DPRK's objective might thus be a long period of competitive coexistence with the ROK rather than a gradual

---

2 The ROK's three-phase unification policy, discussed in Chapter I, requires an initial reconciliation phase followed by a substantive cooperation/commonwealth phase. The danger that economic aid will strengthen the north militarily and the need to tie aid to arms control is discussed in Henriksen and Lho 1994, 51, 83, 86–87, 92, 96.

3 Force reductions would make funds available for development in both the north and the south. By one estimate, shifting 300,000 ROK soldiers to the civilian work force could increase GNP by $1.25 billion. See Henriksen and Lho 1994, 92, 95. The ROK reportedly wants confidence-building measures (CBMs) implemented before it will agree to force reductions. The DPRK, however, distrusts CBMs as a contaminating foreign intrusion. See Kihl 1994, 223.

4 While the U.S. and Canada have similar levels of development and are integrating in accordance with the North American Free Trade Agreement (NAFTA), there is no movement toward political union. The European Union (EU) has formed a tighter union than the NAFTA, including attempts at establishing a single currency, but EU members still jealously guard their political sovereignty.

5 Both the ROK and the DPRK have long pursued unification on their own terms (Kihl 1994, 155). The north continues its united front activities in the south, hoping to achieve unification by subverting the ROK government (Gong *et al.* 1994, 5, 27).

integration.[6] To make this work, the DPRK will have to build foreign political and economic relations independent of the ROK. For example, the DPRK has used US concern over its nuclear program to build direct, high-level contacts with the US. The DPRK has also resumed negotiations with Japan on establishing diplomatic relations. To make progress with the US and Japan, the DPRK will have to create at least the illusion of direct negotiations with the ROK.[7]

In order to avoid a costly unification by absorption, the ROK might have to accept a northern vision of competitive coexistence. That is, if the DPRK regime's survival depends on independent economic relations with the US and Japan, and on aid without political strings from the south, the ROK may have to accept those terms.[8] Certainly, the south would prefer to dominate relations between the north and capitalist countries, using its leverage to push the north toward political détente and ROK-style economic reforms. However, if the DPRK will not accept southern influence, the prospects that scenario 3 will lead to unification are diminished.

B. NEED FOR ECONOMIC REFORM

1. Market System

For scenario 3 to succeed, it is essential that the DPRK implement economic reforms. The northern economy must be transformed to a market economy in preparation for eventual integration with the south. Perhaps more importantly, economic reforms are a prerequisite for the rapid economic growth that will narrow the north-south gap in living standards.

---

6 The specter of a German-style absorption of the DPRK by the ROK reportedly led Kim Il Sung to reverse his longstanding proposal for quick political unification and, in 1991, accept the idea of the coexistence of sovereign governments and different systems within a confederal framework. See Kihl 1994, 38, 142. Since the north will resist economic or political liberalization, the confederacy stage may persist for many years. See Jordan 1993, 15.

7 North-south dialogue is a Japanese precondition for normalization of its own relations with the DPRK. This may help explain the DPRK's 1991–92 agreements with the ROK on rapprochement and nuclear controls. See Kihl 1994, 120. However, northern diplomat Li Sam Ro argues that the US and Japan should develop balanced relations with both Koreas in order to reduce pressure on the north and promote successful north-south dialogue. See Jordan 1993, 33–34.

8 See, for example, the discussion in Jordan 1993, 53–54. Southern businessmen, however, fear a rush of their Japanese competitors to invest in an open, independent north. See *Business Korea*, July 1992, 2; and *Business Week*, September 19, 1994, 1.

The DPRK economy cannot perform adequately until some of the handicaps illustrated in Chapter II are removed. Most importantly, that means replacing central planning with a market system.[9] The central planning approach has been abandoned by the formerly socialist economies of eastern Europe and the Soviet Union. Even China and Vietnam, which still espouse socialism, have greatly reduced the role of the central plan. The central planning approach failed, in part, because it did not provide adequate performance incentives and goals to managers and workers. The planners arrogated all of the key economic decisions to themselves, reducing enterprises, cooperatives, and their employees to order takers.[10] Moreover, the planners neglected the measurement and pursuit of economic efficiency, allocating productive resources instead based on strategic and social objectives. The result was a system that wasted scarce resources and failed to stimulate the productivity growth necessary to achieve its objectives.[11]

The DPRK evidently tried to buy productivity in the early 1970s, borrowing hard currencies and importing billions of dollars in modern factories and equipment. The effort apparently failed and the north was unable to repay the loans a few years later.[12] This episode may indicate the likely fate of economic aid to an unreformed DPRK. Modern equipment alone is not sufficient to raise productivity in a system that cannot elicit the full potential of its resources. Southern aid aimed at modernizing centrally planned factories thus might contribute little to raising northern productivity and living standards.

---

9 The northern system is an extreme example of Soviet-style communism. The state owns virtually all resources and controls almost all activities via the State Planning Commission and local governments. Prices are fixed centrally and do not reflect economic costs. See *Korea and World Affairs*, Spring 1992, 22–24.

10 Increasing economic complexity has also made central planning more difficult. See *Korea and World Affairs*, Spring 1991, 25. Further, planners evidently must work with poor data due to military censorship and propaganda distortions. See Henriksen and Lho 1994, 20.

11 Central planning was fairly effective during the north's extensive growth phase (until the 1970s), when growth could be achieved by mobilizing resources and the economic choices were fairly obvious. Thereafter, when growth had to come more from productivity increases, central planning proved inadequate. See Kwack 1994, 107, *Foreign Affairs*, Winter 1992, 3, and *Korea and World Affairs*, Spring 1991, 25.

12 See the discussion in Chapter II, section G2. The DPRK imported industrial plants and technology for shipbuilding, machinery, power, and petrochemicals. It later defaulted on the loans, in part, because its exports were not competitive. See *Korea and World Affairs*, Spring 1991, 26. The DPRK was more successful in importing Soviet factories because the Soviets agreed to accept 60-80 percent of the output from those factories as payment. See *Asian Survey*, September 1993, 867. The Soviets also provided some 4,000–5,000 economic and technical experts. See *Far Eastern Economic Review*, May 30, 1991, 40.

What is needed is a market system that will guide the allocation of economic resources by establishing prices that reflect economic costs. That system should reward efficiency and punish waste. Enterprises should be held accountable for their profitability and should be shut down when they fail. Workers too should be rewarded for productivity and fired for not producing.

2. DPRK Priorities

The structure of the northern economy reflects the DPRK government's strategic objectives. The exaggerated emphases on heavy industry and agricultural self-sufficiency are driven by national goals of military strength and economic independence. The priority given to those sectors has stunted the growth of consumer and light industries and services. In order to improve the standard of living, and eliminate the wasteful overemphasis on the favored sectors, the DPRK must change its priorities.

A continued emphasis on autarky and heavy industry will frustrate efforts to develop the northern economy. The northern market is too small to support large capital-intensive industries. However, the DPRK's isolation and stultifying planning system seemingly block the development of export markets to improve capacity utilization, particularly since the demise of Soviet-bloc trading preferences. Agriculture too will increasingly absorb national resources in the quest to achieve food self-sufficiency despite a harsh climate and insufficient arable land.

3. Foreign Opening

The DPRK maintains very weak economic relations with other countries. As noted in Chapter II, its 1991 trade represented only 11.3 percent of GNP, far below the 37.2 percent level for countries with similar per capita incomes. Further, the north has hosted very little foreign direct investment (FDI). Relying primarily on Koreans living in Japan, the DPRK has attracted only $150 million in cumulative FDI, a paltry sum compared with the billions of dollars being invested in East Asia. It is difficult to envision successful development in the north without a substantial opening to foreign commerce.

As suggested in the previous section, exports can enable a country with a small market to achieve an efficient scale of production. However, this strategy requires specialization. Increased trade will force the DPRK to concentrate on areas where it has a comparative advantage and rely on imports to meet its needs in other areas. That necessarily means increased interdependence with other countries, making the DPRK vulnerable to economic sanctions imposed by its trading partners.

FDI is also very important for an underdeveloped, capital-short country. In effect, FDI enables a country to hire experienced, self-motivated foreign managers with access to technology, capital, and markets. The DPRK could use FDI to learn market-oriented management techniques, upgrade technology, and build up its export sector. Further, both FDI and trade could expose selected northern producers to world class competition, providing a benchmark by which to evaluate their performance.

C. PROSPECTS FOR ECONOMIC REFORM

1. Existing Reforms

During the past decade or so, the DPRK has implemented a few economic reforms affecting both domestic and foreign sectors. However, the reforms did not change the fundamental characteristics of the system and evidently have not had a major impact.

An early domestic reform implemented in 1984 was the so-called August 3rd movement to expand local production of consumer goods. As noted in Chapter II, local governments were encouraged to establish local factories to produce consumer goods using industrial wastes and surplus resources. This increased emphasis on consumer goods was not accompanied by a greater allocation of planned resources. However, the August 3rd factories were permitted to establish direct stores to sell their output rather than being required to sell through the state stores.[13]

The DPRK also made tentative reforms to increase enterprise accountability and autonomy.[14] Beginning in the mid 1980s, an effort was made to establish independent accounting systems for industrial and agricultural production units. Their autonomy was increased a bit for decisions on sourcing inputs, retaining profits, and providing bonuses to workers. Material incentives and disincentives were used to a small degree.

Recent indications of possible domestic reform include apparent government tolerance for the illegal sale of consumer goods in farmers markets and informal urban markets.[15] Further, Pyongyang is reportedly now served by semi-private taxis.

---

13 This reform kept the local factories sensitive to market conditions. The ease of product distribution facilitated the establishment of small factories. Kim Jong Il was associated with this policy, buttressing his reformist credentials. See Kihl 1994, 297.

14 Domestic reforms are discussed in Eberstadt 1995, 15 and Hwang 1993, 206, 275.

15 Apparent reforms are mentioned in Kwack 1994, 170; *Christian Science Monitor*, August 26, 1992, 11, and Hwang 1993, 275.

Moreover, the (failed) 1987–93 economic plan placed a greater emphasis on expanding consumer goods production and light industries.

Reforms for the foreign sector also were initiated in 1984, with the enactment of legislation permitting joint ventures with foreign investors. In 1992, Kim Jong Il introduced additional reforms giving provinces greater authority to conduct foreign trade and providing state enterprises with greater discretion in setting export production priorities.[16] In 1993 and 1994 the DPRK enacted additional laws to promote foreign investment, including laws dealing with foreign exchange, banks, and the establishment of free economic and trade zones. These laws, however, have been characterized as "half-hearted" and "tinkering at the margins" in meeting the concerns of potential investors.[17] As noted above, investor response has not been overwhelming.

Finally, since 1991, the DPRK has substantially increased indirect exports to the ROK. However, this was only a partial liberalization since the north has not imported very much from the south.

2. Future Reforms

The prospects for future reform are uncertain to say the least. On the one hand, economic logic suggests that the DPRK has no choice but to reform. On the other hand, the DPRK regime's political calculus concludes that economic reforms are impossible.[18] Reform prospects are probably poor unless there is a change of regime.

The need for reform is discussed at length above. Economic output has declined since 1989 and food, fuel, and spare parts shortages are rampant. To meet the needs of its military and its people, the regime must increase its foreign-exchange earnings through exports to capitalist countries. To keep pace with military modernization by the ROK, the DPRK needs growing economic capacity and access to modern military technology.

---

[16] This reform was evidently instrumental in increasing border trade with China. See *Far Eastern Economic Review*, August 4, 1994, 50.

[17] See Henriksen and Lho 1994, 22–23.

[18] This paradox is articulated, for example, in Kwack 1994, 185; and Gong, Sato, and Ok 1994, 13.

However, exports can be expanded only if the north improves quality and productivity at home through a combination of domestic reforms and FDI. Without reforms, the north will fall increasingly behind the south.[19] At some point, military or popular dissatisfaction could endanger the regime.[20]

However, the DPRK regime evidently views substantive economic reform as a mortal threat. In May 1990, President Kim Il Sung attributed the downfall of European communism to the infiltration of western ideology and culture.[21] It was economic experimentation and perestroika that had undermined his brother socialists. Accordingly, the north did not respond to its dire straits with substantial liberalization. Even in those case where the DPRK regime sees a need for pragmatic reforms it is most reluctant to admit that need to its people. After all, the regime leans heavily on the myth of the infallibility of itself and its juche philosophy. Admitting that the system has problems could undermine the regime's legitimacy.[22]

Nowhere is this more true than in the comparison between northern and southern development. The northern population has been almost totally isolated from the outside world.[23] They are taught that they are well off and that their brothers in the south are poor and exploited. The origin of the few products imported from the ROK is disguised, for example by removing labels, to hide the south's advanced production capabilities.

---

19 One diplomat in Seoul speculated that the north had realized it was falling behind its southern competitor and would now be forced to institute reforms, albeit cautiously. See *Far Eastern Economic Review*, November 29, 1990, 32.

20 This possibility is discussed in Henriksen and Lho 1994, 32.

21 See Eberstadt, 135–136. DPRK leaders evidently have doubts about China's market reforms as well, especially given such side effects as the 1989 protests at Tiananmen Square. See Kwack 1994, 184.

22 See Kwack 1994,183. Even when the north has implemented reforms, e.g., allowing August 3rd direct sales stores, it has consistently refused to admit that they were reforms at all, since that would imply imperfections in the system. See Kihl 1994, 197.

23 For example, the general population has never heard of Disneyland, Elvis, or man landing on the moon. They believe that the Mercedes Benz is a North Korean product. See *Christian Science Monitor*, August 26, 1992, 10. The top leadership as well as diplomats are said to be well informed. Others with some outside information include students and soldiers trained in Eastern Europe and people who receive visits from relatives along the Chinese border. See Kwack 1994, 182. There are some 100,000 northerners who previously lived in Japan, many of whom are still in contact with relatives in Japan. See Gong, Sato, and Ok 1994, 14. While tourism is growing, mandatory tour guides limit people-to-people contacts. See Kihl 1994, 202.

However, hiding the ROK's prosperity would be much more difficult if imports increased and particularly if southern capitalists established and operated factories in the north. Reforms in the foreign sector thus threaten to reveal to the population the defects and lies of the current system, undermining the legitimacy of the DPRK regime.[24]

The prospects for reform seemingly improved in recent years when officials made unprecedented admissions that the northern economy was in trouble. In his 1994 New Year's message, Kim Il Sung admitted some failure in the north's economic policy and that major changes would be necessary in order to develop foreign markets.[25] Earlier, in December 1993, the Korean Workers Party had announced, for the first time in history, that the north had failed to achieve the targets of the 1987–93 7-year plan.[26] This admission may have given some impetus to the development of free economic and trade zones to attract FDI.

The prospects for substantive economic reforms leading to the establishment of a market economy are murky. Some analysts believe that there are policy debates within the DPRK regime between pragmatic reformers and conservative hardliners. These differences, however, are apparently over priorities and flexibility rather than wholesale change.[27] Some 78 percent of the population nevertheless was born after the Korean War and may be more concerned with economic problems than ideology.[28] Another positive sign may be the reemergence of former deputy premier and chairman of the State Planning Commission Kim Dal Hyon. Kim, described as a pragmatist and an advocate of

---

24 See, for example, Henriksen and Lho 1994, 33; and Hwang 1993, 290.

25 See Kihl 1994, 335.

26 See *Facts on File*, December 23, 1993, 959.

27 See the analysis by Robert A. Scalapino in Gong, Sato, and Ok 1994, 15. The possibility of technocrats pushing for change within the military and the Korean Workers Party is mentioned in *Far Eastern Economic Review*, January 19, 1995, 25–26.

28 See Gong, Sato, and Ok 1994, 43. There is reportedly a "Three Revolutions" group of northerners in their mid-forties who advocate improvements in technical know-how, ideology, and culture. See *Business Week*, July 24, 1995, 59.

high-technology imports from the US, had been demoted in December 1993, in conjunction with the failure of the seven-year plan.[29] Even the new leader Kim Jong Il has sometimes been associated with the reformist camp.[30] Finally, China has reportedly advised the DPRK to imitate its own approach of combining economic reforms with firm political control.[31]

D. AID WITHOUT REFORM

Scenario 3, which may be emerging even now, begins in the face of an unreformed northern economy. The south offers aid and economic cooperation in an effort to induce political cooperation from the north.[32] The north proceeds with efforts to attract foreign investment and increase trade, which in turn increases pressures to reform the economy. Eventually, it is assumed, the north adopts substantive reforms leading to a market economy. In the meantime, however, what contribution can southern aid make to long-run development? As suggested above, attempts to raise northern productivity through modernizing investments without market reforms are probably futile. However, possible exceptions to this outlook include infrastructure investments and FDI.

Some economists argue that long-lasting infrastructure investments, even though initially misused, will support rapid growth later when sound economic policies are implemented. In South Korea, for example, the economy stagnated in the 1950s despite massive US aid. While the aid was aimed primarily at stabilizing the Syngman Rhee regime, the government was able to use aid counterpart funds to invest in infrastructure and industry.[33] When President Park Chung Hee implemented effective growth policies in the

---

29 See *Far Eastern Economic Review*, August 4, 1994, 50; and *Wall Street Journal*, July 17, 1992, B7A. Kim had visited the south during the 1991–92 rapprochement period and had pushed for the development of free economic and trade zones. Following his 1993 demotion, his participation in Kim Il Sung's July 1994 funeral indicated that he had been rehabilitated. See *Forbes*, September 12, 1994, 180.

30 As mentioned above, Kim was associated with the 1984 movement to expand consumer goods production and with 1992 reforms in the conduct of foreign trade. In 1994, Kim announced that southern imports could henceforth carry labels disclosing their southern origin. See *Forbes*, September 12, 1994, 180.

31 China reportedly is unwilling to carry the burden of keeping an unreformed northern economy afloat. See Kihl 1994, 100, 103, 108; and *Wall Street Journal*, December 11, 1990, A14.

32 For example, in 1995 the ROK agreed to give 150,000 tons of rice to the DPRK. See Foreign Broadcast Information Service FBIS-EAS-95-120, June 22, 1995, 9. Further, the ROK has allowed the resumption of negotiations for southern investment in the north.

33 See Cho Soon 1994, 14. Investments in education, power, railroads, and ports during the 1950s all contributed to growth in the 1960s, even though not all of these new capabilities were optimally employed at first. See Krueger *et al.* 1989, 235.

1960s, the 1950s infrastructure made a strong contribution. While delaying an investment payoff generally reduces its value, the ROK might nevertheless justify investments in the north as contributing to eventual unification.[34] This might include, for example, dams, roadbeds, pipelines, and ports.[35]

Some types of FDI can be productive and largely independent of the domestic economy.[36] FDI factories in special free economic and trade zones, for example, can import production equipment and materials and export the resulting products, relying on the DPRK only for infrastructure and labor. This would enable the DPRK to earn foreign exchange without domestic reforms. Without reforms, it is questionable whether the foreign exchange earnings would contribute much to the north's development. Perhaps the main development contribution of pre-reform FDI would be to establish a source of foreign exchange that could be used productively when and if reforms are instituted.

E. DEVELOPMENT AFTER REFORM

Once the north begins a transformation to a market economy, the ROK can make a valuable contribution toward long-run development. The south can provide a combination of management experience, capital, markets, and technology. However, for good or bad, the north will make its own development decisions. The ROK will not be able to manage the northern transformation the way it could under scenarios 1 and 2.

Ideally, the north would gradually establish a market economy, increasingly open to southern and foreign competition, with sound macroeconomic policy management. North-south trade barriers would be reduced over time until a Korean free trade area (FTA) could be established. While the north would initially rely primarily on foreign capital, it would eventually finance a large portion of its investment through domestic savings. In the beginning, the DPRK would depend heavily on the ROK government for infrastructure investment and on private FDI for building modern production facilities. Eventually, with a productive economy as collateral, it would gain direct access to global credit markets.

---

34 For example, the ROK might help the north build a hydroelectric dam now in order to raise the north's standard of living at the time of unification, 50 years in the future. It may not matter to the south whether the resulting electricity is wasted for the first 10 years, unless that indirectly increases aid costs or delays unification.

35 A natural gas pipeline linking Russia with Japan via Korea has been proposed. See *Business Week*, September 19, 1994, 8.

36 The ROK's National Unification Board, for example, has suggested that southern FDI in special northern zones could create pockets of industry that could survive full reunification. See *Economist*, July 16, 1994, 20.

In the real world, northern development is likely to resemble that of China.[37] Since 1978, China has been embarked on a path of economic reform. However, the path leads to something called socialism with Chinese characteristics rather than capitalism. China has cut back central planning to cover only certain core industries. The overwhelming majority of prices are now determined in markets. Further, China has allowed substantial growth of production outside the confines of the large, state-owned enterprises. A sector of entrepreneurial companies owned by local governments has sprung up, along with a smaller privately owned sector. FDI has also been encouraged, including joint ventures between foreign investors and state-owned or other Chinese companies. Growth in trade and gross domestic product (GDP) has been spectacular. China's economy nevertheless has some critical flaws impeding its long-run development. Most importantly, the large state-owned industries have not been subjected to binding budget constraints. Most of them lose money but cannot be shut down because that would create unemployment in a country without an adequate welfare safety net. They demand and receive loans despite the attempts of central authorities to tighten monetary policy. They cannot be privatized because they are insolvent and, more importantly, for ideological reasons.

Of course, it would be a great improvement for the DPRK if it could reform to the point that China has. However, the China case illustrates that even market reforms need not lead to a market economy like that of the ROK. Like China, a reformist DPRK is likely to value state ownership and abhor unemployment. It will hesitate to remove subsidies or abandon central planning altogether. It is likely to choose a path of partial reforms. China has demonstrated that such a course can dramatically improve the standard of living, at least in the medium term. The DPRK will be forced to turn, for example, to the ROK economic system only when it has exhausted the possibilities of partial reform. In the meantime, while a rising northern standard of living may ease the pain of future integration, the northern and southern economic systems may not be converging.

The course of northern development will be affected by the fact that the DPRK will remain an independent, sovereign country throughout scenario 3. In particular, the DPRK will continue to pursue objectives related to national security, including building up strategic industries and promoting self-sufficiency. As discussed above, pursuit of such objectives is costly and retards overall development, particularly for a small country such as North Korea. The DPRK will nevertheless be forced to pursue them to some extent. Even if north-south economic cooperation leads to political détente and a reduction of military

---

37 For a review of China's reforms, see Bell *et al.* 1993.

forces, as the ROK intends, the DPRK will still need to defend itself. After all, the DPRK will enter scenario 3 with the intention of uniting Korea under its own political and economic system.

This poses a serious risk under scenario 3. That is, economic aid from the south will help build the military potential of a communist country intent on retaining its political and economic system. Certainly, the south will insist that reconciliation and confidence-building measures precede major aid commitments.[38] However, the south is not going to get a commitment from the north to abandon either socialism or sovereignty, at least not until long after the south begins helping the north in a major, substantive way. A danger will remain that, in the future, the DPRK will resume its hostility toward the south, newly strengthened through economic growth. This could occur, for example, at a time when reforms have gone so far that hardliners feel the survival of socialism is at risk.

An important element of maintaining northern sovereignty will be to maintain national control over strategic industries. Even if the DPRK adopts a market economy and privatizes its production enterprises, it will still hesitate to allow them to be controlled by southern capitalists. It will block FDI that threatens its independence and national pride. Further, it will protect the interests of its northern constituents, giving preferences to northern companies and protecting northern entrepreneurs. In many cases, the DPRK will pay the cost of restructuring northern industries that would simply be abandoned under scenario 1. From the viewpoint of a united Korean economy, the north will suboptimize, thereby wasting resources and slowing development.

F. POLICY TOOLS

Because the north-south border would remain intact under scenario 3, the policy tools discussed above for scenario 2 will be available. That is, the DPRK can maintain border controls to protect its industry and restrict emigration. It can maintain a separate currency and choose its own pace for transforming its economy. The principal difference is that, under scenario 3, ROK planners will have little or no control over how these tools are used.

The DPRK would use these tools differently than would ROK planners. As discussed above, the north would probably give excessive protection to its industries. The north might try the same mercantilist strategy that South Korea and Japan have been

[38] As noted in Chapter I, the ROK's three-phase unification proposal begins with a period of reconciliation before moving on to a more substantive period of commonwealth.

accused of following. That is, the north might undervalue its currency to promote exports while maintaining a high wall of tariffs and other barriers to restrict imports. Such deviations from free trade would generally hinder northern development by blocking competition and slowing the restructuring of northern industry. They could also lead to the development of northern industries that will not be viable in the event of economic integration with the south, forcing yet another round of restructuring.

In some ways, the authoritative nature of the DPRK regime offers a policy tool not available to the ROK government under scenario 2.[39] Government repression, for example, could be used to promote development through repressed wages and forced savings. In theory, a dictatorial regime also should be able to enforce tough restructuring decisions that lead to unemployment, although communist regimes have rarely done that.

---

39 While the ROK has a long history of authoritative behavior, it has undergone a substantial democratization since 1987.

VII. CONCLUSIONS

Reunification of Korea will be a costly, untidy undertaking. None of the planning scenarios analyzed in this paper is superior to the others in all respects. The principal findings are summarized as follows:

1. The North Korean economy is uncompetitive. Like East Germany's economy, it would collapse under the pressure of market competition. Both economies exhibited low productivity due to obsolete factories and inadequate incentives under the centrally planned system. Further, both suffered from inefficiency arising out of an overemphasis on heavy industrialization and agricultural self-sufficiency.

2. The costs of German unification were increased by currency, wage, and welfare policies that eroded the potential cost advantage of producers in the eastern territory. Germany's high-wage approach prevented eastern producers from offering low-quality goods at low prices to compete with high-quality western products. This hastened the collapse of existing eastern firms and slowed the emergence of new ones.

3. A Korean unification by absorption (scenario 1) would be very costly. As the North Korean economy collapsed, the ROK government would be forced to provide welfare transfers to support unemployed northerners and maintain public services. However, currency, wage, and welfare policies designed to give the north a competitive cost advantage could moderate the collapse and speed the long-term development of the northern economy.

4. Unifying Korea politically but administering the north as a separate economic zone (scenario 2) could reduce emergency welfare costs by slowing the pace of integration. However, the subsidies necessary to keep northern producers solvent would partially offset potential welfare savings. Further, it is not clear that the population would accept continued separation long enough to permit a gradual northern transformation that avoided substantial unemployment. In any case, long-term development would be delayed.

5. Delaying political unification until the north's economy could be developed and integrated with the south's (scenario 3) could reduce emergency welfare costs. Unemployment costs associated with restructuring the economy could be spread over time and shared between the northern and southern governments. However, the process would be slowed if the north tried to retain its current economic system and an economic structure designed to support its separate sovereignty.

This paper has not explicitly estimated the costs of unification under the various scenarios. Qualitatively, it is apparent that short-term welfare costs would be highest under scenario 1, while long-term development costs would be highest under scenario 3. However, without quantitative cost estimates, it is not clear whether the short-run costs of scenarios 1 or 2 would be affordable or which of the three scenarios could be achieved at the lowest overall cost.

If the south can afford it, a peaceful unification by absorption (scenario 1) has much to recommend it. It achieves the objective of political unification quickly and cements that union by an economic integration that would be very difficult to reverse. Given the same initial circumstances, the ROK could instead choose to implement an imperfect union (scenario 2), reducing immediate costs but also delaying the political assimilation of the north. However, the north may not collapse and the ROK may not have an opportunity to implement scenario 1 or 2. Gradual economic integration leading to political union (scenario 3), if it succeeds, could be the least-cost option for the south. Unfortunately, it requires substantial ROK expenditures long before political union is assured. If union is not achieved, and especially if the south is later faced with a hostile but strengthened north, scenario 3 could prove costly indeed.

BIBLIOGRAPHY

Asian Develpment Bank, 1992. *Key Indicators of Developing Asian and Pacific Countries, 1992*, Oxford University Press.

Bell, Michael W., Hoe Ee Khor, and Kalpana Kochhar, 1993. *China at the Threshold of a Market Economy*, International Monetary Fund.

Bello, Walden, and Stephanie Rosenfeld, 1990. *Dragons in Distress: Asia's Miracle Economies in Crisis*, The Institute for Food and Development Policy.

Cho Soon, 1994. *The Dynamics of Korean Economic Development*, Institute for International Economics.

Eberstadt, Nicholas, 1995. *Korea Approaches Reunification*, National Bureau of Asian Research, M.E. Sharpe.

Ghaussy, A. Ghanie, and Wolf Schafer, ed., 1993. *The Economics of German Unification*, Routledge.

Gong, Gerrit W., Seizaburo Sato, and Tae Hwan Ok, ed., 1994. *Korean Peninsula Trends and U.S.-Japan-South Korea Relations*, Center for Strategic and International Studies.

Henriksen, Thomas H., and Kyongsoo Lho, ed., 1994. *One Korea: Challenges and Prospects for Reunification*, Hoover Institution Press.

Hwang, Eui-Gak, 1993. *The Korean Economies: A Comparison of North and South*, Clarendon Press.

Jordan, Amos A., ed., 1993. *Korean Unification: Implications for Northeast Asia*, Center for Strategic and International Studies.

Kihl, Young Whan, ed., 1994. *Korea and the World: Beyond the Cold War*, Westview Press.

Krueger, Anne O., Constantine Michalopoulous, and Vernon W. Ruttan, 1989. *Aid and Development*, John Hopkins University Press.

Kwack, Sung Yeung, ed., 1994. *The Korean Economy at a Crossroad*, Praeger.

Lipschitz, Leslie, and Donogh McDonald, ed., 1990. *German Unification: Economic Issues*, International Monetary Fund.

Pikcunas, Dr. Diane D., 1993. *Nations at the Crossroads: Unification Policies for Germany, Korea and China*, Council for Social and Economic Studies, Monograph Series No. 22.

Research Institute for National Reunification (RINU), 1993. *Economic Problems of National Unification.*

Sinn, Gerlinde and Hans-Werner Sinn, 1994. *Jumpstart: the Economic Unification of Germany*, MIT Press.

U.S. Arms Control and Disarmament Agency, 1994. *World Military Expenditures and Arms Transfers 1991-1992.*

U.S. Trade Representative, 1991. *Foreign Trade Barriers*, U.S. Government Printing Office.

World Bank, 1995. *Unemployment, Restructuring, and the Labor Market in Eastern Europe and Russia*, Economic Development Institute Development Studies.

World Bank, 1993. *The East Asian Miracle*, Oxford University Press.

World Bank, 1991–93. *World Development Report*, Oxford University Press.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY ***(Leave blank)***

2. REPORT DATE
September 1995

3. REPORT TYPE AND DATES COVERED
Final

4. TITLE AND SUBTITLE
Korean Unification: Alternative Economic Strategies

5. FUNDING NUMBERS
Central Research Program

6. AUTHOR(S)
James P. Bell

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Institute for Defense Analyses
1801 N. Beauregard Street
Alexandria, VA 22311-1772

8. PERFORMING ORGANIZATION REPORT NUMBER
IDA Paper P-3141

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Institute for Defense Analyses
1801 N. Beauregard Street
Alexandria, VA 22311-1772

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT ***(Maximum 200 words)***

Reunification of North and South Korea could impose huge costs on the richer southern half. This paper examines alternative approaches to reducing those costs. The key is to prevent the utter collapse of the northern economy. This might be accomplished after unification through policies to keep northern price levels competitive or by protecting northern producers. Alternatively, unification could be delayed until the northern economy is ready. While the delaying approach would reduce the immediate cost burden, it would not necessarily lead to unification. In the meantime, a strengthened northern economy could pose a heightened security threat to the south.

14. SUBJECT TERMS
Korea, unification, economic, Germany

15. NUMBER OF PAGES
136

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	SAR